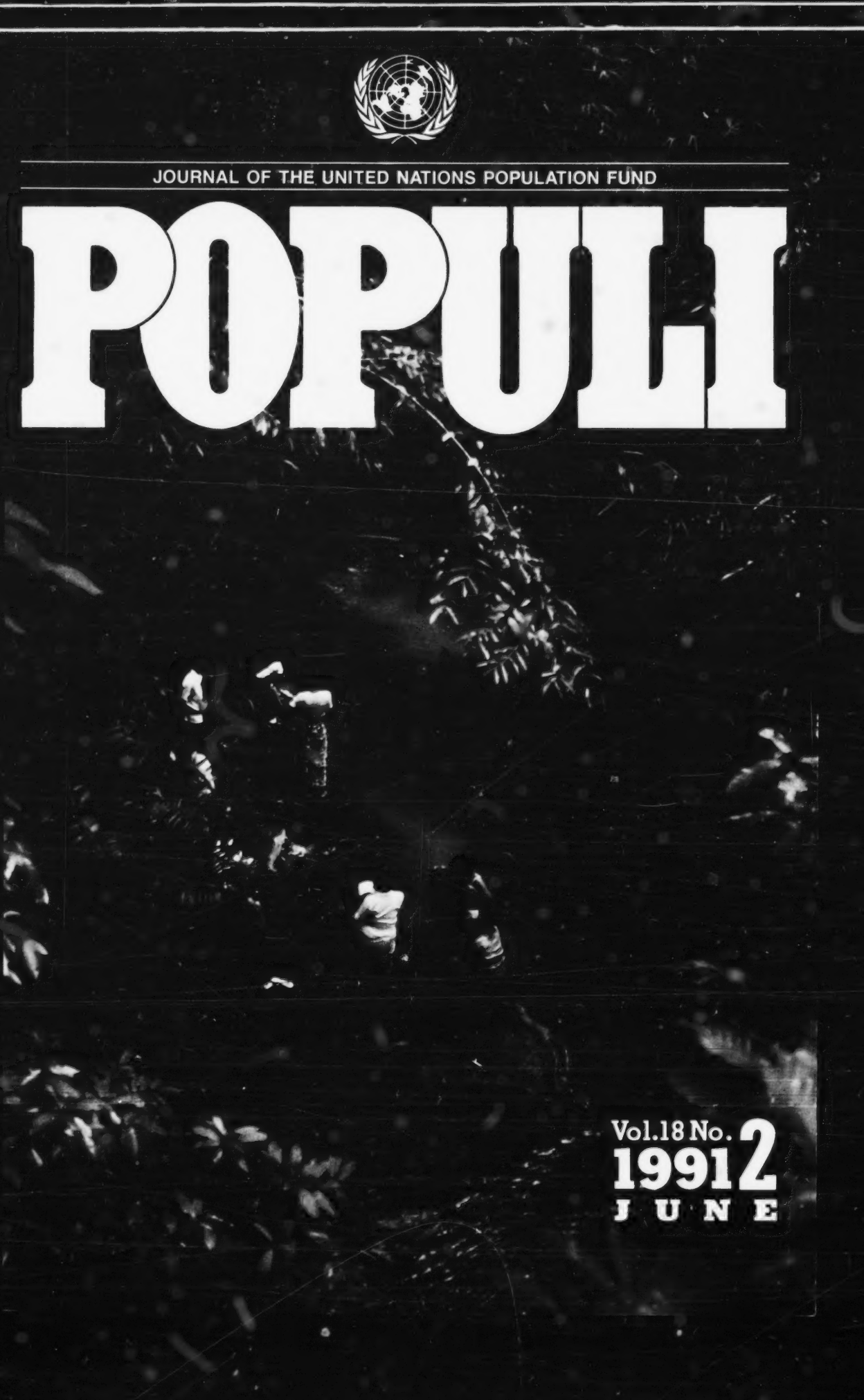
JOURNAL OF THE UNITED NATIONS POPULATION FUND

POPULI



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JUNE

TO THE READER

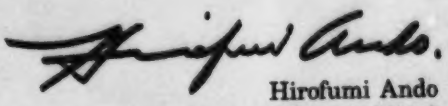
This issue of *Populi* is centred on family planning and related population subjects including the effects of population growth on food supplies and on the global climate.

We lead off with an article by UNFPA Executive Director Dr. Nafis Sadik who discusses the current demographic situation and internationally agreed action for meeting the challenge. Family planning, she reminds us, is also a right: Making the right to family planning a reality will help to meet population targets.

Don Hinrichsen and Alex Marshall show how explosive population growth in developing countries is damaging the environment and threatening food production beyond subsistence levels. They call for an integrated strategy for agricultural production, water management, soil conservation, afforestation and, of course, family planning.

Global warming is being discussed in alarming terms in the public media, usually without much scientific basis. Vaclav Smil says that a precise assessment of the phenomenon is necessary so that effective measures can be undertaken–including limiting consumption and population growth–which will allow us to live within biospheric limits.

In his last public address, Takashi Sato said that resolving population and development problems calls for a solution that balances diverse but deeply intertwined issues. The chairman of the Asian Population Development Association from its founding until his untimely death in April, Sato said that one of the keys to the vexing problem of population distribution is improving agricultural conditions in rural areas.



Hirofumi Ando
Editor-in-Chief

READEX FICHE

POPULI

Editor-in-Chief
Hirofumi Ando

Editor
Hugh O'Haire

The Economic and Social Council (Resolution 1763 [LIV], 18 May 1973) states that one of the aims and purposes of the United Nations Population Fund is "to promote awareness, both in developed and developing countries, of the social, economic and environmental implications and of national and international population problems; of the human rights aspects of family planning; and of possible strategies to deal with them, in accordance with the plans and priorities of each country."

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by Dr. Nafis Sadik

Targets in fertility and family planning for the next decade are for the first time part of international development strategies, according to the 1991 State of World Population Report. The cost of meeting those targets will double by the year 2000, but success is critical for development–even human survival. Better family planning, states UNFPA's Executive Director, is everyone's responsibility. It demands renewed commitment from the international community, governments, non-governmental organizations and individuals.

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Precise assessment of the consequences of a rise in planetary temperature is impossible, the author argues. But a sensible appraisal of the possible risks is essential. Economic and other complex factors are likely to slow worldwide measures to cut greenhouse gas emissions. Therefore, reducing fossil fuel consumption should be only one component of a wider effort to live within biospheric limits.

Finding the Balance 46

by Takashi Sato

Resolving population and development problems calls for a solution that balances diverse, related issues, according to the late author who died in April. Rural development based on agriculture is the answer to population distribution problems, he says.

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CHOICE

Many women, in the USSR and around the world, resort to abortion because they have few other means of limiting family size. Wider choice of contraceptive methods increases the number of users and prevents reliance on abortion as a contraceptive.

JORGEN SCHYTTE

or CHANCE?

by Dr. Nafis Sadik

Targets in fertility and family planning for the next decade are for the first time part of international development strategies. Reaching them will be critical for development – and even for human survival – in the next century.

Estimates of population growth have again been revised upwards. According to the UN medium—"most likely"—projection, population for the year 2025, at 8.504 billion, will be 38 million higher than anticipated two years ago.

The figures

Estimates of population growth have again been revised upwards. World population is projected to be 5.4 billion in mid-1991. By 2001 the total will be 6.4 billion. Annual additions will continue to rise through the 1990s.

According to the United Nations medium – "most likely" – projection, population for the year 2025, at 8.504 billion, will be 38 million higher than anticipated two years ago. As for eventual totals, recent work by the United Nations Population Division suggests that population growth will stop much later, and at much higher levels, than previously thought. Instead of a stable total of about 10.2 billion in 2085, the world may well reach 10 billion by about 2050, and significant growth will continue for another hundred years after that. Population may eventually level off at about 11.6 billion. For the foreseeable future, nearly all (95 per cent) of this growth will be in developing countries.

The consequences

In a study of 120 countries by the Population Crisis Committee, demographic pressures were compared with the performance achieved by national political institutions. Only a handful of countries with serious demographic pressures had managed to maintain stable constitutional governments with good records on civil and political rights.

Population growth and migration are contributing to changes in key ecosystems in developing countries with unknown but potentially serious effects on food supply in the immediate area, and on global climate change.

DR. NAFIS SADIK *is executive director of UNFPA.*

Population growth and migration are contributing to changes in key ecosystems in developing countries, with unknown but potentially serious effects on food supply and global climate change.

As their numbers have grown, formerly self-sufficient rural populations have been forced into a downward spiral of poverty and hunger because of degradation of the lands on which they live. It is now estimated that 580 million people are living in absolute poverty on marginal or fragile land. One of the results has been mass migration from subsistence farming to the cities.

There is explosive urban growth in almost all parts of the developing world. More than 85 countries have city populations double those of 10 years ago. Cities in developing countries are growing at 3.6 per cent per year compared with only 0.8 per cent in industrialized countries. By the end of the century, the urban population of the developing world will be almost double that of the developed world.

The strongest migratory pressures – both within countries and internationally – always appear in countries with rapid population growth and a slow pace of development, according to a recent report by the Organisation for Economic Co-operation and Development. The number of migrants fleeing poverty, political oppression or environmental instability is growing at a time when the need for unskilled and semi-skilled workers is in decline in industrialized countries.

Instability is exacerbated by the burden of dependency. A relatively small number of working people have to support both younger and older generations. In Kenya, Benin, Botswana, Iraq and Syria, for example, approximately 50 per cent of the urban populations are under 15 years old. At the same time, life expectancy has increased dramatically, particularly among urban communities.

There is universal international agreement that better balance in population growth and distribution is a necessary part of a strategy for survival and development.

Family planning – a demographic necessity

But permanent declines in fertility will only be reached by widespread voluntary use of modern family planning. Extending family planning services has therefore become a priority target of international development programmes, both as an end in itself and to promote other development goals.

The total fertility rate – a national measure of the average number of births per woman – in developing countries is now about 3.8, and about 51 per cent of couples regularly use some means of contraception. The United Nations medium projection for population growth is based on the assumption that total fertility will fall to 3.3 births per woman by the year 2000. This in turn implies that regular contraceptive use ("contraceptive prevalence") will rise to 59 per cent. This is the target now adopted by the international community.

The pace of population growth means that even maintaining the present level of contraceptive prevalence at 51 per cent calls for an additional 108 million users. To reach the modest 59 per cent target will require 186 million more users. Most of these (140 million) will be in Asia, with the rest divided more or less evenly between Africa, Latin

America and the Caribbean, and the Arab States.

But another 14 million users in Africa implies an increase in contraceptive use of 158 per cent. For the Arab States the increase is 84 per cent, and for the other two regions about 45 per cent each. The target, though modest, may be hard to reach.

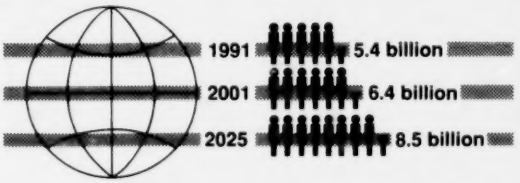
Taking into account family planning

Family planning - strategy for survival

Extending family planning services during the 1990s will not only help people have the size of family they want – it will help keep population growth at levels the world can live with. More and better voluntary family planning services will be vital for development, and even survival, in the 21st century.

Faster than ever

World population – 5.4 billion in 1991 – is growing faster than ever before. By 2001, the total will be 6.4 billion, by 2025, 8.5 billion. Just to keep the figures from going any higher will take a major international effort.



Hurting the environment – hurting development

● More people in developing countries means more pressure on land and water resources. Many people have to move to cities or to other countries.

● Cities in developing countries are growing rapidly, leading to air and water pollution. Urban populations need food: developing countries will be importing 112 million tonnes by the year 2000.

● In developing countries, 105 million children are not in school. Faster population growth means more pressure on education and health services.

Adding it up

The United Nations Population Fund estimates that it will cost $9 billion a year by the year 2000 to provide voluntary family planning services to the 567 million couples who will need them. This means doubling present expenditures. Half will come from the developing countries themselves, the other half from the richer countries. UNFPA alone will need $1 billion a year by the year 2000.

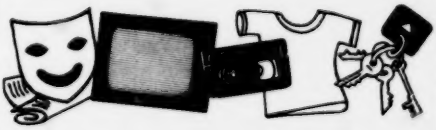
Delivering the goods

Strong programmes get good results. A change from "low" to "high" programme effort can make a difference of more than 2 births per woman in a country with a high level of development. Even where development levels are low, the difference can be 1 or more births per woman.

● A wide variety of methods and services works best. In Thailand, contraceptive use increased from 15% to 70% between 1970 and 1990. People can usually find a method that suits them, available from public health clinics as well as from private doctors, traditional medical services and pharmacies.

Family planning works

World population is 412 million lower than it would have been without family planning programmes. In the 1960s, only 10% of couples used modern contraception. Today, the figure is 51%, 381 million couples. But it must go up to 59%, or 567 million couples, by 2000. Just to keep on track, another 2 billion people will need family planning services.



Family planning can be fun

Imaginative media campaigns can break through myths, get people thinking and looking for services. Satisfied customers help spread the word.

● In Nigeria, nearly 25% of new clients at family planning centres cited TV shows giving clinic addresses as their referral source.

● In the Philippines a quarter of a sample of 600 young people between 15 and 25 said they sought contraceptive advice after seeing two music videos on family planning.

● In Brazil, a vasectomy advertising campaign brought a 54% increase in the number of vasectomies performed over the next year.

Graphics: Clive Offley

Compared with any previous generation, women today are saying they want fewer children. The voluntary use of contraception in developing countries has grown from 10 per cent of couples in the 1960s to 51 per cent now.

users who switch methods, and those who pass beyond their childbearing years, separate, divorce or die, increasing total family planning use on this scale will mean reaching about 1.5 billion people in developing countries with modern methods of family planning in the next 10 years. More than 2 billion people will start planning their families for the first time or move to more effective methods.

Family planning – a personal need

Compared with any previous generation of women in developing countries, today's mothers are saying they want fewer children. Similar statements cannot be made of today's fathers, because research has concentrated on those who actually bear children. But it is becoming increasingly clear that men in a wide variety of social and economic settings are turning in favour of smaller, but healthier, families.

The number of women using contraception today might increase by 100 million if they were fully implementing their preferences for spacing and childbearing. It is estimated that enabling couples to make perfect choices in planning their families might make a difference of 2.2 billion in the population size of the developing world by the year 2100. The difference between effective family planning programmes and no programmes at all could be 4.6 billion people.

Hopeful signs

The most recent evidence shows that for the first time, fertility is declining in all major regions of the world. Even in high-fertility, low-contraceptive prevalence areas such as south Asia and Africa, today's women are having fewer children compared with 1960-1965. Contraceptive use is growing and is responsible for much of the fertility decline. The percentage of married couples using contraceptives in the developing countries has grown from less than 10 per cent in the 1960s to 45 per cent in 1983, and to 51 per cent today. In east Asia, where fertility rates have more than halved over the past 25 years, contraceptive prevalence rates have increased from 13 per cent to 70 per cent.

Family planning programmes can claim much of the credit. Without them the 1990 population of the developing world would have been larger by 412 million. China and India respectively claim 200 million and 106 million "births averted".

Financial requirements

Neither the need for family planning nor the internationally accepted targets can be met without a major increase in the amounts spent on population programmes (estimated in 1989 at about US$4.5 billion annually). More than two thirds, or approximately US$3.5 billion,

is provided by developing countries themselves. Many of the well-established national programmes in the developing world are funded largely from national resources, but the poorest countries and those with newer programmes need considerable external assistance.

At present, 10 countries provide about 95 per cent of all international population assistance. The United States is the largest donor, with more than US$240 million annually, accounting for 50 per cent of such assistance. Japan is the second largest donor, contributing over 10 per cent, while Canada, Denmark, Finland, Germany, the Netherlands, Norway, Sweden, and the United Kingdom have all made substantial contributions. International population assistance from all sources, including the World Bank, amounted to US$675 million in 1988.

Estimates of the cost of population programmes show that the annual outlay will probably need to double to US$9 billion by the end of the decade. Half of this should be provided through international agencies and bilateral aid programmes. The share of the United Nations Population Fund, as the major international channel, should amount to US$1 billion. The doubling of resources seems a formidable undertaking, but it could be achieved by a yearly increase of 7 per cent during the 1990s.

Policy requirements

Only 4 of the world's 170 countries now limit access to family planning services, and 144 provide either direct or indirect support to family planning programmes. At the World Summit for Children in August 1990, 70 Heads of State called for an extension of family planning services to all who wanted them.

While each country will set its own policy based on its own demographic and cultural setting, a universal aim must be to provide quality, modern family planning services which are affordable, accessible and appropriate to local needs. The evidence from 25 years of experience in organized family planning programmes is that a good quality service, with consistent political and administrative support and innovative public education efforts, can produce very rapid changes in reproductive behaviour in a wide variety of economic and social settings.

Family planning is not just a matter of providing contraceptive services. The ability to take advantage of family planning is part of an attitude to life.

A lifetime choice

Family planning is not just a matter of providing contraceptive services. The ability to take advantage of family planning is part of an attitude to life. It is created by an environment in which everyone has opportunities and choices, including access to family planning services.

The process of building these opportunities begins at birth. How parents greet the birth of a new child; whether a girl is as welcome as a boy; whether girls and boys are reared with equal chances of health and education; and whether the parents choose to plan the

birth of a subsequent child affect the opportunities and aspirations of the whole family, and will have a bearing on how future generations perceive opportunities for choice in their own family life. As children grow to adulthood and parents become grandparents, a whole society's values change.

Choices in family planning are a private matter for individual couples. It is precisely because of this that government at every level, opinion leaders, education and health services, communities and families are all involved in the success of family planning programmes. They provide not only services and facilities, but support and promotion of the right to use them. The individual decision requires the support of all levels within the community.

Family planning as a right

The right to family planning has been accepted by the international community for over 20 years. Understanding that family planning is a key component in social development, the International Conference on Human Rights in 1968 said that "parents have a basic human right to determine freely and responsibly the number and spacing of their children", a statement which has been the basis of international action ever since, usually with the addition of the important phrase "and to the information and the means to do so". It was included in the revised Charter of Human Rights in 1968, endorsed by 157 governments. It has subsequently been reaffirmed by, among others, the World Population Conference in 1974, by the International Conference on Population in 1984, the Conference on the Decade for Women in 1985, and most recently by the 1989 International Forum on Population and Development in the Twenty-first Century.

Ensuring that the right to family planning becomes a reality has three aspects. The first is the provision of services, information and education, and the second is removing legal restrictions to access. The third aspect, more easily overlooked but no less important, is social change in favour of family planning.

Family planning and the status of women

There is a multiplier effect when well-constructed family planning programmes are introduced along with legal and social measures which make them accessible and acceptable. A woman's control over her own fertility has been called "the freedom from which other freedoms flow". Opportunities beyond marriage and children are a practical expression of family planning as a human right.

The vast majority of governments now accept raising the status of women – for example, by better education and health services – as a goal in itself. Both increase a woman's ability to make her own decisions in life and her potential for earning an income. But they are also important in promoting the right to family planning.

Equal protection under the law, including the rights to divorce, to earn and keep money, and to own and inherit property, as well as raising the age of marriage and eliminating discriminatory marriage customs such as dowry or bride-price reinforce respect for women as equals. They also reinforce women's self-respect and widen her range of choices, including the choice to have or not to have children. Girls who have been brought up to regard themselves as equal to their brothers during childhood are more likely to adopt family planning as adults.

In childhood and adulthood, the unpaid work performed by the female population should be recognized and rewarded. The more attractive their options in employment, including equal pay for work of equal value, paid maternity leave and childcare facilities, the more likely women are to choose the timing of the births of their children.

Recognizing women's training needs and their need for access to technology in all aspects of the economy can help to boost their status and increase their

Family planning as a human right

The world has accepted family planning as a human right since 1968. The Charter of Human Rights says "parents have a basic human right to determine freely and responsibly the number and spacing of their children." Yet only half the couples in developing countries have access to family planning services.

People want fewer children

When the ingredients of life provide security and autonomy people opt for family planning – if it is available.

- In developing countries in the 1970s parents wanted on average 4.5 children. In the 1980s, the figure went down to 3.5. But people are still having more children than they want.
- If for the next hundred years everyone were able to make their perfect choices in family size, world population would be smaller by about 2 billion people.
- The difference between good family planning programmes and no programmes at all could be over 4 billion in the same period.

Good for mothers, good for children

Every year half a million women die in pregnancy or childbirth. Nearly all are in developing countries. The youngest and oldest mothers, those who have had many pregnancies or had them too close together are much more at risk. Avoiding pregnancy could save 200,000 of those women.

Family planning programmes help children survive. Babies have the best chance when their mother is over 20 but under 35; when she has three children or fewer; and when they are born two or more years apart. The first child of a teenage mother is much more likely to die than the second or third child of a woman aged 20 to 24.

Teenage Pregnancies

Up to 15 million teenagers become pregnant each year. Four out of five of teenage pregnancies outside marriage are unwanted.

Culture and religion

Cultural and religious attitudes need be no bar to family planning. But programmes must be appropriate to the community concerned.

- In Muslim Bangladesh, many women leave their homes only with an escort. But they can be involved in family planning when information and services can be brought to them at home.
- In Catholic Mexico, birth rates dropped by 20% in a decade after a national family planning programme was introduced.
- In Buddhist Thailand, fertility dropped from an average of 6.5 children per woman to 3.5 in only 8 years. Nearly 70% of couples use contraception.

Graphics: Dave Offley

scope for decision-making; so can access to credit. In several countries in Africa and Asia, credit schemes for poor women are presenting new opportunities for income generation. More women are being encouraged to take part in agricultural extension schemes and conservation projects.

Sex discrimination starts early in life, with a society's preference for sons. In poor communities in south Asia, there is often a preference for at least two sons. Under these conditions, women who have only daughters cannot plan their families because they are under too much pressure to have sons.

Son preference is deeply rooted, but the reasons for it – traditional dowry, inheritance, and old-age support systems – are themselves disappearing. Son preference would disappear, too, over time, but the process should be accelerated by education, information and, where necessary, legal action.

Other cultural issues also need sensitive attention. In countries where the sexes are segregated, or where women's appearance in public is discouraged, women are often deprived of access to information and services. Nevertheless, studies in a long-running rural health and family planning project in Matlab (a rural district of Bangladesh) revealed that family planning could reach rural women through home visits by locally recruited female outreach workers.

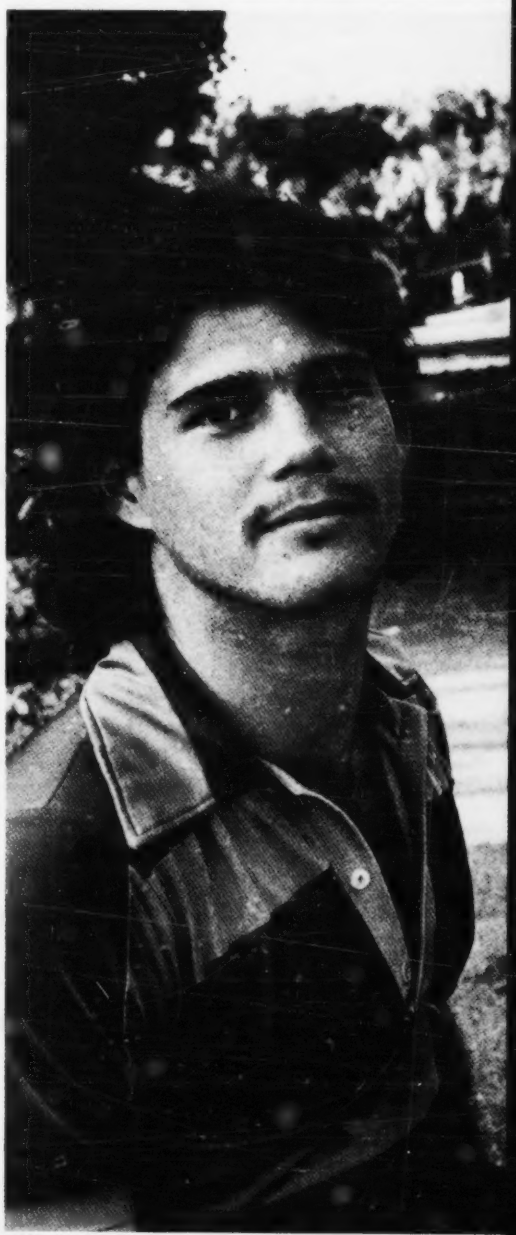
Health

Surveys in many developing countries show that as many as 50 to 80 per cent of married women already want to limit or space future births. Couples know the risks to women's and children's health of having too many, closely-spaced children.

Family planning creates an opportunity for women to improve their own health by planning whether, when, and how many children to have. It is estimated that between 25 and 40 per cent of maternal deaths could be prevented if women could choose to avoid unwanted and poorly planned pregnancies.

Adolescent girls are at particular risk when services do not meet their needs. Maternal deaths among women aged 15 to 19 years are up to three times as high as for those aged 20 to 24. Up to 80 per cent of adolescent pregnancies outside marriage are unwanted.

Lack of health services for women often obstructs the right to family planning becoming a reality. Maternal and child health (MCH) services are the most important conduit for family planning services, yet typically, they have been a low priority for national expenditure. And the proportion of even these limited resources devoted to women's health is extremely low.



Part of the problem is that women are considered expendable in countries where their status is low. Little attention is given either to their health or to their nutrition. And although pregnancy is a major cause of death, it is considered a "normal" condition which does not warrant substantial investment, either to manage or to avoid.

According to the World Health Organization (WHO), half a million women die each year as the result of pregnancy and childbirth. The actual total may be considerably higher. Of these deaths 99 per cent are in developing countries and the vast majority are preventable. In Africa and south Asia, official rates of maternal death are sometimes as high as 800 to 1,000 for every 100,000 live births, and are probably higher still in areas unreached by health services. The comparable figure for Norway is 2 per 100,000; for the United States, 8. The provision of family planning services for all women who want them could save 25 per cent or more of these deaths. The Safe Motherhood Initiative, launched in 1987, aims to increase resources devoted to maternal health and to achieve a 50 per cent reduction in maternal deaths in developing countries by the year 2000.

At present, only a minority of women in the developing world deliver their babies in hospital, and most do not even have trained help during a home delivery – during 1990, only 38 per cent in Africa and 49 per cent in Asia.

Once women begin to see health as their right, they also choose family planning as part of the means to achieve it. In some parts of the world it is the first visit to a clinic for a prenatal or postnatal check-up which presents the first opportunity to learn about contraception, and a well-attended delivery can provide the choice to contracept.

Effective family planning should be affordable, accessible, appropriate, and aimed at those who most need it. Teenagers are often overlooked, but in Cuba services especially for adolescents are in full swing.

JØRGEN SCHYTTE

Child survival

Family planning programmes have a major impact on child survival. The life chances of a child are much increased if couples are able to space births, to limit the number of children they have and to avoid pregnancies too early or late in the life of the mother.

Lower infant mortality is desirable in

itself, but it is not a prerequisite for family planning. Statistics for England and Wales show that the decline in the birth rate which occurred in the second half of the nineteenth century preceded the fall in infant mortality. In Colombia, fertility rates fell from 6.8 per woman in 1964 to 4.2 by 1978. During that year, the probability of a child in Colombia dying before its fifth birthday was close to 1 in 10. Introduced alongside other child survival strategies, family planning programmes work synergistically to assure parents that their smaller family will survive into adulthood.

Education

Family planning programmes benefit from an educated population. Parents who see education opportunities for their children also see that the fewer the children, the better their chances. Educated men and women are more likely to know about what services are available and have more confidence to seek and use them.

An estimated 60 per cent of the global total of 105 million children excluded from school are girls. A recent World Bank survey of 20 countries in the developing world showed that less than 10 per cent of 6-to-11-year-old girls were in school. Mauritius, Botswana and Zimbabwe, where a high proportion of girls do receive primary education, have also had success with family planning programmes.

The higher the level of education achieved by women, the greater the influence on fertility rates. In Zimbabwe, for example, women with no formal education have an average of seven births, while women with secondary education (or higher) are having fewer than four. Likewise in Latin America, a recent demographic and health survey confirms that education is a key factor in changing patterns of contraceptive use. Women who have completed nine or more years of education (30 per cent of women of reproductive age) have a much higher level of contraceptive use and have fewer children.

The historical experience of the Republic of Korea is particularly dramatic. Between the early 1960s and 1988, the proportion of girls completing secondary school increased from 25 per cent to 86 per cent. During the same period, the number of women using contraceptives increased from less than 10 per cent to more than 75 per cent and total fertility rates fell from 5.4 children per woman in the reproductive age group to below 2.

If extending rights to education is to be fully effective, parents need support to plan smaller families to reduce the total numbers of children requiring education. Girls born into families living at subsistence levels are particularly unlikely to be given the opportunity to attend school, partly because of male preference and partly because children, particularly girls, are needed as unpaid labour. In some countries, early marriage and the fact that more education is not going to result in better employment are also used to justify limiting girls' access to primary education.

There are intractable economic problems, but where the problems are as much cultural as economic, there are ways to boost the enrolment of girls. A successful approach in Bangladesh is the "one-room" village school run by local female teachers. This minimizes costs of primary education as well as parents' fears about their daughters' safety.

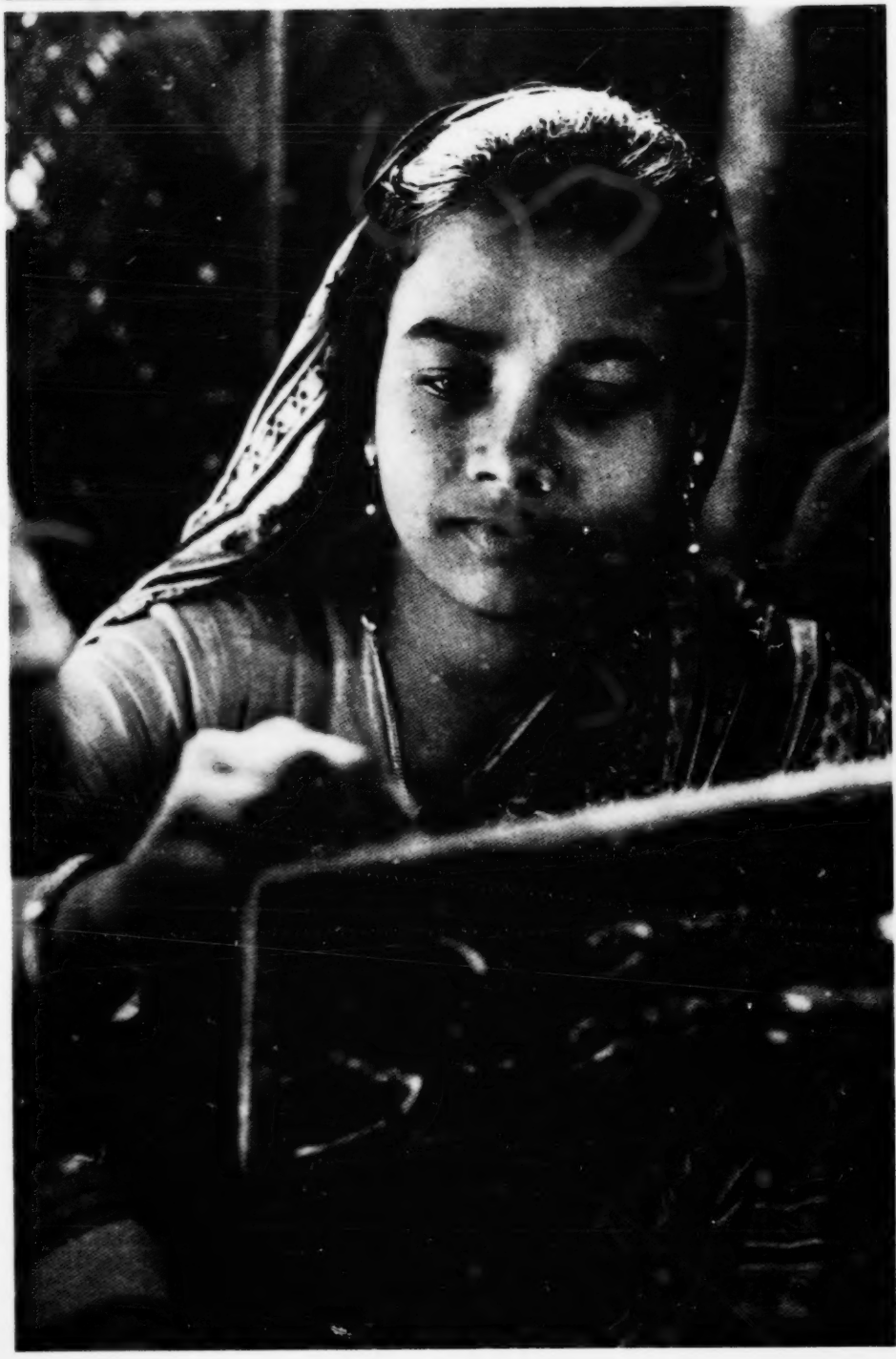
For women who have never been to school, programmes which offer the opportunity for "functional literacy" through income-generation schemes have helped women stay healthy during pregnancy, practise better child care and take advantage of their newly recognized right to family planning for healthier spacing of pregnancies.

Participation

A participatory approach to national development can help to make programmes more effective. The 15 countries in the developing world highlighted in the United Nations Development Programme's Human Development Report

1990 as having a reasonably democratic political and social framework with human development are Botswana, Colombia, Costa Rica, Jamaica,

Of an estimated 105 million children out of school, 60 per cent are girls. Yet UN surveys show that education is a key factor in increasing contraceptive use. Special schools in Bangladesh are giving women opportunities to see beyond the role of motherhood.



SHAHIDUL ALAM

Malaysia, Mauritius, Mexico, Sri Lanka, Thailand, Turkey, Trinidad and Tobago, Tunisia, Uruguay, Venezuela, and Zimbabwe. Each of these countries has seen substantial fertility reductions and increases in contraceptive prevalence rates.

Emphasizing community participation means emphasizing primary health care, among other things. Thailand has built up a strong primary health care programme over many years. The combination of a network of health workers and volunteers within a reasonably well-developed public health system has had a major impact on the family planning programme as well as on health services in general.

In Indonesia, too, the National Family Planning Coordinating Board, known by its Indonesian acronym as BKKBN, places a strong emphasis on community outreach through involvement of local political, religious and educational leaders and by a service and supervision network that reaches every village and neighbourhood, including family planning field workers who make house-to-house calls. These well-organized and highly motivated field workers have been one of the keys to the success of the national programme.

Religion

Religion need not be a bar to the availability of family planning. With a largely Catholic population, Mexico has an extremely effective government-run family planning service. In Colombia, another predominantly Catholic country, the government has successfully delegated the provision of comprehensive family planning services to non-governmental organizations. In other strongly Catholic countries, such as Peru, Brazil, and the Philippines, there is strong official support for population programmes which include modern family planning methods. Peru's president Alberto Fujimori is supporting a major new family planning programme because he believes that "natural family planning" is unreliable and leaves people living in fear. With mixed Muslim, Hindu, and Buddhist populations, Indonesia, Sri Lanka, and Thailand have had some of the most successful family planning programmes in Asia. At the same time, the percentage of Catholic couples in the United States using modern methods of contraception is about the same as for non-Catholics.

Religious leaders can themselves play an important role in encouraging family planning. Muslim leaders in Indonesia have regularly spoken in favour of family planning. Until recently, however, religious principle was thought to bar acceptance of sterilization as a method. However, following a meeting in Aceh, in northern Indonesia, Islamic religious leaders from 29 countries agreed that along with the need to provide accessible family planning and counselling services, voluntary sterilization should be recognized as an acceptable form of contraception.

Most religious groups agree with the internationally accepted position that abortion is not a method of family planning. They recognize the benefits of family planning in reducing the number of abortions, legal and illegal, by preventing unwanted pregnancies and the tragic and unnecessary deaths which result from unsafe abortion. Denying family planning services to women who then terminate unwanted pregnancies simply adds to induced abortion rates.

Human development

Family planning has won acceptance in a wide variety of economic and social environments. Acceptability is enhanced by promoting other human rights – economic security, adequate housing and community services, education and health; by supporting women's social, educational and employment rights; and by following a human-centred approach to development.

Put simply, family planning is encouraged by a society in which basic needs are met and in which women participate on an equal basis with men.

A country does not have to be economically wealthy for family planning programmes to succeed. It is the level of investment devoted to providing all individuals with opportunities which is the key to ensuring that family planning becomes a reality as well as a right.

Family planning also helps to meet basic needs and increases women's opportunities to participate in life outside the home.

A country does not have to be economically wealthy for family planning programmes to succeed. It is the level of investment devoted to providing all individuals with opportunities, rather than the per capita GNP as such, which is the key to ensuring that family planning becomes a reality as well as a right.

Providing an effective family planning programme

Family planning programmes work. Of the key factors determining fertility levels in a population, the most important is the practice of contraception. Social and economic development which produces improved levels of education and a rising standard of living (particularly for women) brings lower fertility, but without family planning programmes, the fertility decline starts later and is less pronounced.

The most powerful combination is development combined with family planning programmes. According to Population Council studies, among countries with a high level of development, a change in official family planning programme effort from "very low" to "high" produces an estimated additional decline in total fertility of 2.3 births per woman. A similar change in family planning programme effort in countries with a low level of development also has an impact, but at a lower level – 1.1 births per woman. Expanding and improving family planning services, and creating the conditions for increased demand, are both essential for success.

In most developing countries, this implies government action, with an emphasis on mobilizing national support. Strong and well-publicized government support for family planning in Zimbabwe, for example, has resulted in one of the highest contraceptive prevalences in sub-Saharan Africa. In eastern Asia, which includes China and the Republic of Korea, total fertility fell by half in the 20 years to 1990, with strong government support for family planning programmes.

Some national governments have successfully introduced incentives to encourage lower fertility rates, in tandem with reducing the cost and increasing the convenience of contraceptive use. Incentive policies perceived to be coercive, however, have generated negative publicity and undermined national programmes.

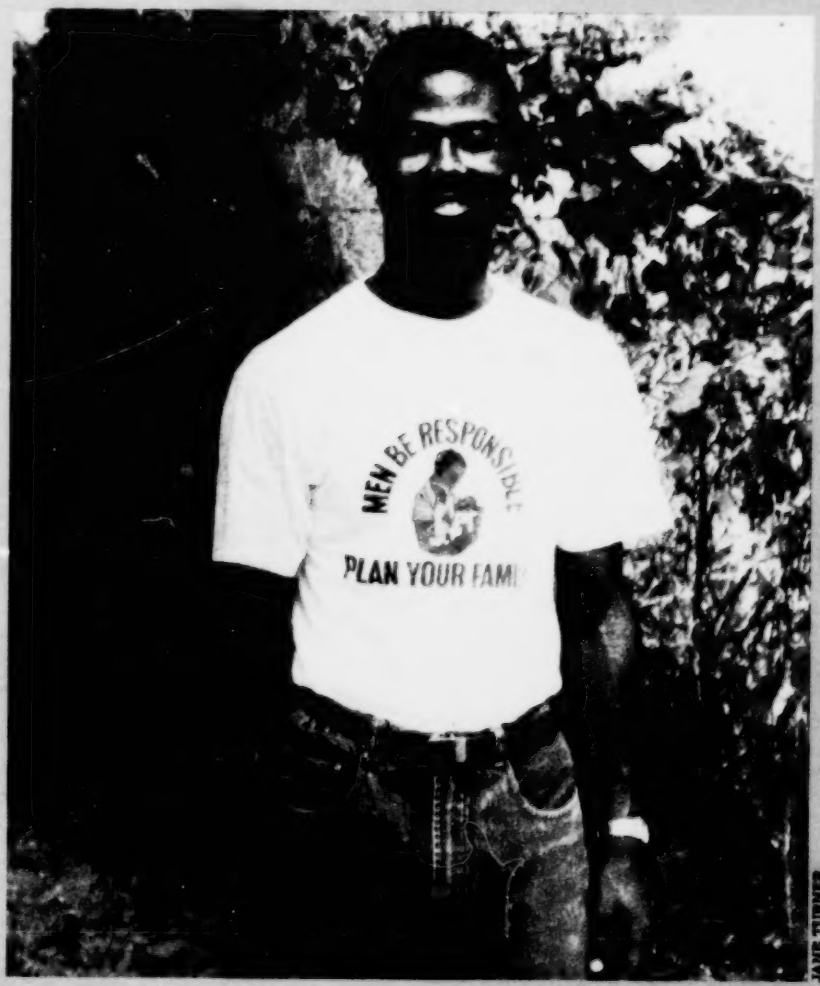
Method-oriented approaches to fertility control such as the sterilization drive in India in the 1970s usually have not been successful. The majority of acceptors in the Indian campaign already had large families, and it failed altogether to reach younger women and men. On the other hand, the introduction of a wide range of contraceptive methods, suitable for couples wishing to space their children and on a sustainable basis with easy access, has had an impact on national fertility rates during the 1980s.

TARGETING MEN: GHANA'S DADDIES' CLUB

The crucial role of husbands in determining family size first prompted a coordinator of the Planned Parenthood Association of Ghana (PPAG) to find a way of speaking directly to men – an audience traditionally ignored by family planning education and information campaigns.

Sabena Efua Mensah from PPAG's Western Region had the idea of setting up a Daddies' Club in workplace recreational centres where male workers meet to relax after work. The Club's activities range from lectures and group discussions on a variety of health-care and home management issues, including family planning, to providing jerseys to the football team with a condom logo and a "Wear Me" message printed on the front.

PPAG claims that "Daddies' Clubs" have increased family planning acceptor rates in the area and demonstrate that, provided the approach is right, African men can accept family planning.



JANE TURNER

Far fewer men than women take responsibility for contraception. But several countries are now involving boys and men. Male contraception is cheap, simple to use, and helps prevent the spread of sexually transmitted diseases and AIDS.

Nearly 30 years of national family planning programmes have clearly demonstrated that long-term success in increasing contraceptive use and decreasing fertility rates can be assured by securing willing consent based on full information and education and a wide choice of methods. Information and education campaigns are at their most successful when the messages are both culturally focused – sensitive to regional, ethnic and socio-economic differences – and targeted towards specific audiences.

The importance of men

It is only relatively recently that family planning programmes have come to recognize that men are an important target audience for family planning information and education. What men know about contraceptives they usually learn from their wives, friends or the mass media, and only rarely from health professionals. It seems that lack of useful information and services, rather than lack of interest, has kept them from taking a more active role in family planning.

The importance of young people

Providing family planning information and services to young people is extremely important, but complex. Some 15 million adolescent girls – married and unmarried – become pregnant each year. Surveys conducted among young people in Monterrey, Mexico, in the mid-1980s revealed that 75 per cent felt that they lacked information about sex and reproductión and did not know where to go to find it.

Education outreach programmes for young men and women have been organized in several countries. The Centro de Orientación Para Adolescentes (CORA) in Mexico offers recreational activities, counselling, job training, sex education, and medical services to young people. Research in Monterrey found that trained young volunteer outreach workers, supervised by a community counsellor and working through informal networks, were the most effective means of providing sex education and family planning information, particularly to young single men.

The importance of quality

The most important determinant of a successful family planning programme is its design and implementation. A working definition of quality family planning services comprises six main elements:

1. Ensuring that there is a wide choice of contraceptive methods;
2. Providing information that helps users select and practise contraception effectively;
3. Ensuring the technical skills and experience of contraceptive providers;
4. Ensuring good client/provider relations, where the client can have full trust and confidence in the provider;
5. Providing a follow-up mechanism which promotes continuity of contraceptive use, whether well-informed users manage that continuity on their own or the programme has a formal mechanism to assure it;
6. Ensuring that services are accessible and convenient for clients and meet pressing pre-existing health needs.

The importance of choice

Offering couples a wide range of choice of contraceptive methods is crucial to the success of every family planning programme. Women and men have particular needs and preferences; wider choice allows for individuality.

Patterns of contraceptive use vary from region to region, and as family planning rises in a region, the types of

Human development may be as important as economic development for the success of family planning programmes.

TARGETS FOR THE TWENTY-FIRST CENTURY

Achieving sustainable development requires making human needs and human rights a priority in integrated population, environmental and development policies and programmes.

Balanced population growth

The ultimate aim is to ensure that family planning services are available to all couples; the immediate target is to extend modern family planning services to 567 million couples, 59 per cent of all married women of reproductive age, by the year 2000. This will ensure a fall in total fertility in developing countries from 3.8 to 3.3 children per woman, maintaining the United Nations medium population projections.

Improving family planning services

- Bring family planning information and services closer to the people they serve;
- Provide high quality services and a wide variety of family planning methods;
- Provide education and information about family planning services to all groups;
- Ensure that neglected groups such as adult men, young people and young newlyweds receive greater attention;
- Ensure reliability of services, counselling and referral in cases of need;
- Ensure that family planning services are integrated into all health services, particularly primary health care;
- Encourage community-based distribution, including commercial channels, in order to ensure contraceptives are more widely available.

Contraceptive technology

Successful voluntary family planning programmes depend on the availability of safe, affordable and effective means of contraception.

Governments and the international community should increase support for research and development of new and existing contraceptive technology, and encourage increased private sector investment.

Promoting the status of women

Improving the status of women helps increase voluntary family planning. Similarly, family planning helps to improve the status of women. Governments should therefore:

- Eliminate laws and practices which discriminate against women and girls or restrict their rights;
- Ensure that all women have access to credit and benefit equally from development programmes;
- Improve rewarding employment opportunities, including provision for maternity leave and child care at the workplace;
- Ensure universal female enrolment in primary school by the year 2000, and raise female secondary enrolment and women's literacy;
- Ensure that every woman receives at least one prenatal consultation and that a trained assistant is available during delivery;
- Ensure women's health services include information on the prevention of sexually-transmitted diseases, including AIDS, and on infertility.

Social development

The following goals for the health and development of women and children are common to WHO, UNICEF, UNDP and UNFPA:

- Between 1990 and the year 2000, reduction in maternal mortality by at least 50 per cent;
- Between 1990 and the year 2000, reduction of infant and under-age-five child mortality rates in all countries by one third or to 50 and 70 per 1,000 live births respectively, whichever is less;
- Access by all couples especially

women, to family planning information and services so as to avoid pregnancies that are too early, too late, too many, or too frequent during a woman's reproductive cycle;
- Enable virtually all women to exclusively breastfeed their child for four to six months and to continue breastfeeding with complementary food well into the second year;
- By the year 2000, universal access to and completion of primary education by at least 80 per cent of primary school-age children, and reduction of adult illiteracy rate (the age group to be determined in each country) to at least half its 1990 level, with emphasis on female literacy;
- The most urgent priority in education is to ensure access to, and improve the quality of, education for girls and women, and to remove obstacles that hamper their active participation.

6. Funding

Doubling funding for population to US$9 billion annually by the year 2000, from the following sources:
- US$4.5 billion from the international community and agencies, including US$1 billion through UNFPA;
- US$3.5 billion from governments and US$1 billion from users in developing countries.

contraceptive methods used can also shift. Older women who already have as many children as they want usually are the first to show interest, and a growing percentage of them choose sterilization. The proportion of users relying on the pill has declined generally, while use of injectable hormonal contraceptives and IUDs has increased. A greater degree of contraceptive choice increases the overall take-up rate, allowing individuals to choose a method that suits them, according to the relative importance given to factors such as safety, cost, reversibility, effectiveness and ease of use.

Effective distribution

Easy access to a wide range of contraceptives is one of the hallmarks of a quality family planning service. Using community distribution networks such as local shopkeepers and market stallholders to distribute free contraceptives, rather than relying totally on clinics and doctors, is effective and convenient, and particularly effective in reaching men. A number of studies have shown that many people who can afford to pay for services, prefer to do so, as it enables them to express their opinions about the services they expect to receive.

Family planning and slower population growth

The remaining years of the twentieth century offer a real possibility for extending family planning and decisively slowing overall population growth rates for several reasons:
- Though global population is increasing in numbers never before experienced, fertility rates are falling in all regions of the world.
- For the first time in history, more than half the world's couples have the means of choosing the timing and spacing of their families.
- An increasing number of women and men see family planning as their right, and are prepared to exercise it.
- All but a handful of countries support family planning services directly or indirectly.
- National family planning programmes deploy greater resources and command more widespread politi-

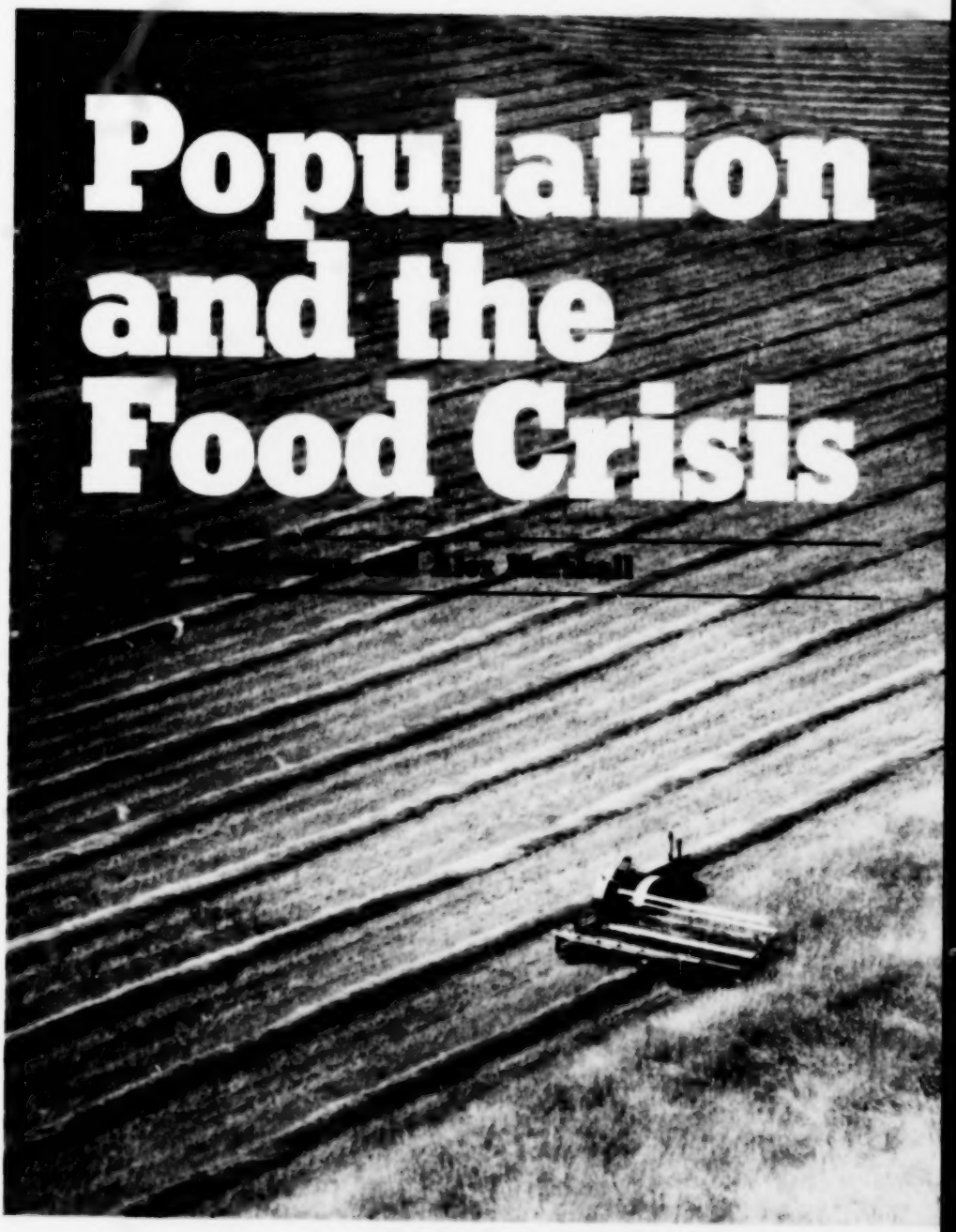
Easy access to a wide range of contraceptives is one of the hallmarks of a quality family planning service.

cal support than ever before. They have proved their acceptability and effectiveness in a variety of economic and social settings. They are supported by a wide range of national and international non-governmental organizations and community groups.

- The international community is unanimous in its commitment to population programmes, and to raising the level and effectiveness of international assistance.

The international targets – to reduce fertility rates in developing countries from the present level of 3.8 to 3.3 by the year 2000, and to increase family planning use from 51 per cent to 59 per cent – are not only practical but critical for development in the next century. Meeting the targets means awarding a higher priority to population in development programmes, and extending family planning information and services to perhaps 2 billion people. It assumes a high degree of commitment, motivation and understanding on the part of political and community leaders at all levels, as well as administrators and service providers, and men and women everywhere. These are the people who will make the final decisions on population in the next 10 years. □

Population and the Food Crisis



Explosive population growth in the developing countries of Africa, Asia and Latin America is damaging the rural environment. Combined with urbanization and the weakness of rural economies, it threatens attempts to improve food production beyond subsistence levels. Lower population growth rates, along with better management of land and water resources, is necessary in order to avert chronic food shortages.

Although developed countries have greatly increased their per capita food

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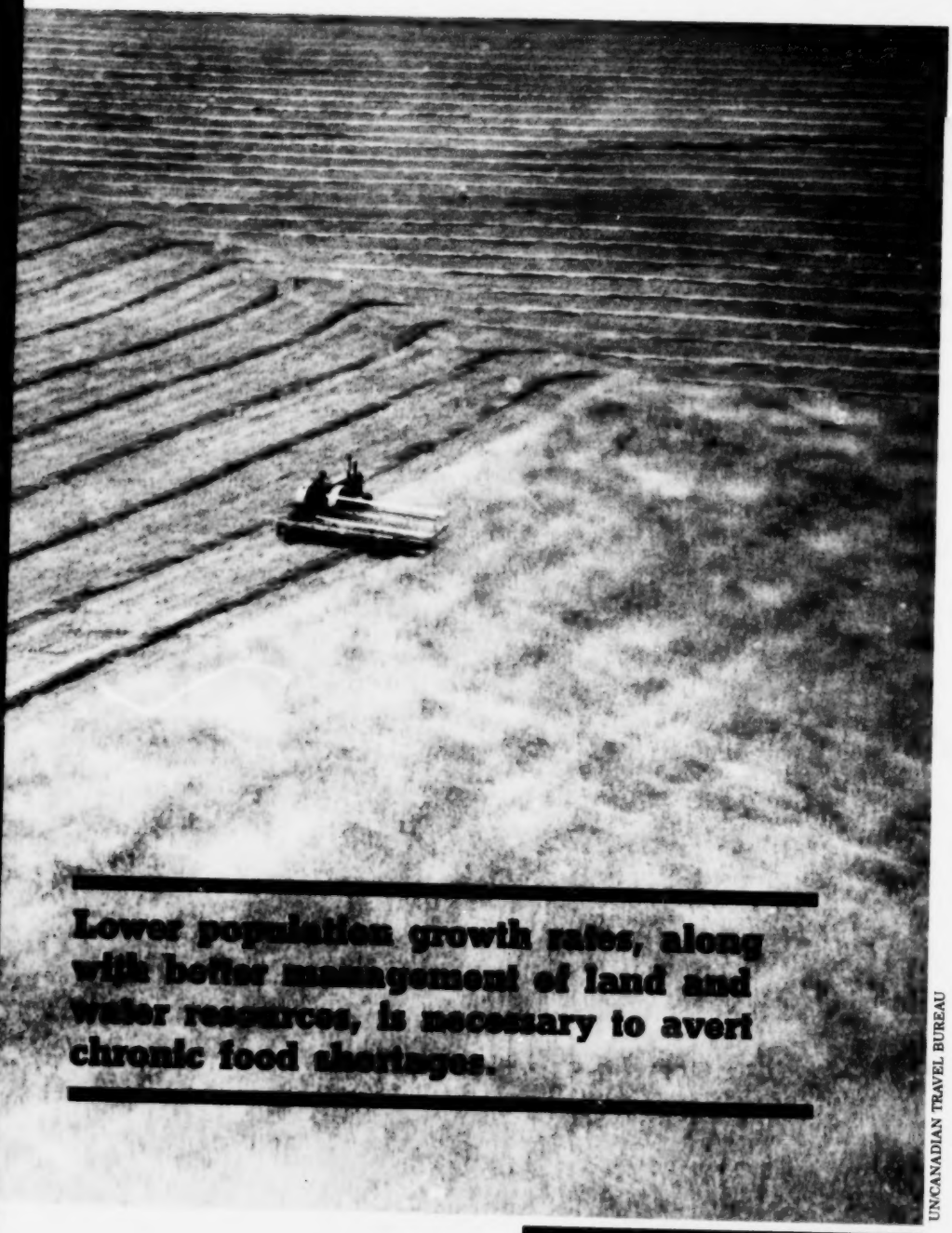


Lower population growth rates, along with better management of land and water resources, is necessary to avert chronic food shortages.

UNCANADIAN TRAVEL BUREAU

Cereal imports by the developing countries are expected to almost double by the year 2000. Surpluses from North American farms, including those in Canada's grain belt, make up most of the deficit at present.

production over the past 40 years, in poorer countries, rapid population growth and rural-urban migration, combined with unequal land distribution and shrinking land holdings, deepening rural poverty and widespread land degradation are undermining attempts to increase per capita food production and consumption. Between 1979 and 1981 and 1986 and 1987 cereal production per person actually declined in 51 developing countries and rose in only 43, out of the 94 countries for which Food

and Agriculture Organization (FAO) data are available. Developing countries' cereal imports in 1969-1971 were only 20 million metric tons. By 1983-1985 they had risen to 69 million metric tons and are projected to total 112 million metric tons by the year 2000. So far these deficits have been met by corresponding surpluses in the industrialized countries, of which the overwhelming bulk comes from the grain belts of North America.

World food security now depends shakily on the performance of North American farmers. Following the drought-hit United States harvest of 1988, world cereal stocks dropped from 451 million metric tons in 1986-1987 to only 290 million metric tons last year – down from a safe 24 per cent of annual consumption to the danger level of 17 per cent.

There are genuine fears that the world may be reaching a watershed in food production. There is not much more good land available for agricultural expansion; water suitable for irrigation is shrinking as demand grows; in many cases current cropland has been pushed to its productive limits; and additional inputs of fertilizers and pesticides are proving counterproductive.

A seminal study sponsored by the United Nations Population Fund (UNFPA) and FAO demonstrated that a given country's ability to feed itself depends a great deal on three factors: enough arable land, accessible water, and population pressures. The more people there are, especially in poor countries with limited amounts of land and water, the fewer resources there are to meet basic needs. And if basic needs cannot be met, then development stalls and economies begin to unravel.

The food crisis equation

The food crisis equation has three main components. First, lifestyles, incomes and social organization determine levels of consumption. Second, the technologies in use determine the extent to which human activities damage or sustain the environment, as well as the amount of waste associated with any level of consumption. These two factors determine impact per person. The third factor, population, is the multiplier that fixes the total impact.

Inequality enters as a fourth factor when, for example, most land is in large holdings and the poor are forced into artificially small or marginal areas. Poverty is involved when it prevents the adoption of more costly new technologies that could halt or slow down environmental degradation.

Population is always part of the equation. For any given type of technology, for any given level of consumption or waste, for any given level of poverty or inequality, the more people there are, the greater is the impact on the environ-

World food security now depends shakily on the performance of North American farmers. Following the drought-hit United States harvest of 1988, world cereal stocks dropped from a safe 24 per cent of annual consumption to the danger level of 17 per cent.

ment and, in turn, on food production capacity.

Losing ground

Between now and the turn of the century, the population in the developing world will balloon by over 900 million, while the population of industrialized countries will grow by a mere 56 million. For the developing world, that 900 million increase translates into smaller agricultural plots per family and the continued pauperization of rural households. It also means more marginal land farmed. The dwindling size of land holdings in Asia, Africa and parts of Latin America is already worrisome. In many areas, landholdings are already too small to provide a tolerable living for their owners. Data from 57 developing countries show that nearly 50 per cent of the holdings are below 1 hectare in size. In Indonesia 70 per cent are below 1 hectare.

A key problem in many poor countries – one that directly affects food production – is land fragmentation. With more sons surviving to adulthood, each male heir gets less land to farm. This is a direct result of rapid population growth and better health care.

In Rwanda, for example, the average smallholder farmed a mere 1.2 hectares in 1984. With a total fertility rate of more than eight children per woman, half of them male, each son would receive on average around 0.3 hectare customarily at the time of marriage. The grandsons, at projected future fertility rates, would receive less than 0.1 hectare each, sometime around the year 2040. Thus, in the space of only 60 years the size of the average landholding would have dwindled by more than 90 per cent because of population growth.

In practice, many landholdings in Rwanda and elsewhere are already too small to provide a living. Many have been turned into part-time farms, with the wife and children staying at home to tend crops while the husband migrates in search of wage employment. Or they are simply sold off to larger and richer landowners, making landholding more unequal and helping to create a large pool of landless labourers. This process can be clearly seen in Latin America and East Africa. With no prospect of rural employment, many of the landless migrate to the cities. Land reform might offer at least part of a solution, but it is an option few countries have taken successfully.

In those countries, mainly in the humid tropics, that still have large reserves of potentially arable land, new areas for cultivation are won at the expense of forests. Where most of the suitable land has already been opened up, as in most countries in Asia and East Africa, marginal land is pressed into use, with sometimes catastrophic results for the environment.

Degraded land grows less food

Land degradation – brought on by rapid population growth, inappropriate farming practices that contribute to soil impoverishment and erosion, deforestation, the overuse and misuse of agro-chemicals, and a frustrating inability to manage water resources – is becoming more severe. In some areas, such as sub-Saharan Africa and the Himalayas, land degradation is already acute. Entire hillsides in Nepal and India are slit from top to bottom with erosion scars. Globally, roughly 24 billion metric tons of topsoil are lost every year, equivalent to 1 inch on 61 million hectares. In all, the FAO estimates that some 544 million hectares – 18 per cent of all cropland – could be lost completely if no conservation measures are taken in time. Overall, unchecked soil degradation and erosion could cause a loss of nearly 30 per cent in food production from rainfed cropland.

Drylands have been hardest hit. In the early 1980s the United Nations Environment Programme (UNEP) reported that a total of 1.5 million hectares of rangeland and cropland in developing countries were subject to from moderate

to severe desertification, affecting the livelihoods of at least 253 million people. In sub-Saharan Africa approximately 65 million hectares of productive land have been turned into desert in the last 50 years.

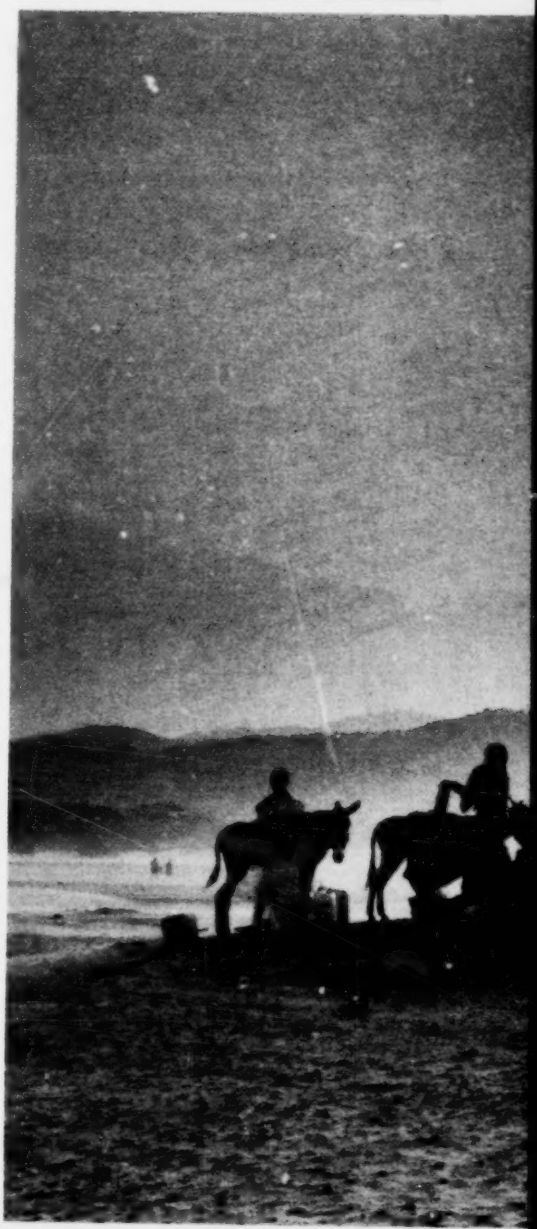
Ethiopia's highlands provide a stark reminder of what can happen when runaway population growth collides with resources. In this region, which has supported agrarian-based societies for millenniums, the soil and vegetation cover has been severely degraded over the course of two decades. Rapidly increasing populations combined with inappropriate farming practices that emphasize short-term cash income at the expense of long-term sustainable productivity have reduced much of the region to subsistence living on eroded land and deforested slopes. This region remains one of the most appalling sights in a continent known for disasters.

The tropics are more prone to soil erosion than temperate zones, because so much rainfall comes in torrential downpours and soils are easily erodible. Normally, a healthy cover of vegetation protects soils against the impact of rain, allowing water to filter into the ground. When this cover is thinned or removed, soil is exposed to the insidious processes of wind and water erosion.

This thinning of vegetation is the immediate cause of most land degradation in developing countries. But the underlying causes are human. Population growth is a key agent. First, forests and woodlands are cleared for farming and fuelwood. Where there is no more new land and farmers cannot afford fertilizer, existing land is overused. This weakens vegetation and impoverishes the soil as well. So too does overgrazing of fallow lands and crop stubbles by livestock herds that have grown in tandem with human populations.

Degraded land is often pushed to the point of no return by wanton deforestation. Deforestation, in turn, affects food production since it alters local hydrological conditions causing less rain to fall. Denuded of protective cover, barren soils retain less moisture, and runoff and flooding become more serious. The Indian sub-continent is a striking example of where upland watersheds – essential for regulating water, climate and food supply – have been stripped of vegetation. The result is massive erosion of soils, loss of productivity, and downstream flooding. India's flood prone area has increased from 19 million hectares in 1960 to 60 million by 1984.

Some 65 hectares of productive land in sub-Saharan Africa have been turned into desert in the last 50 years.



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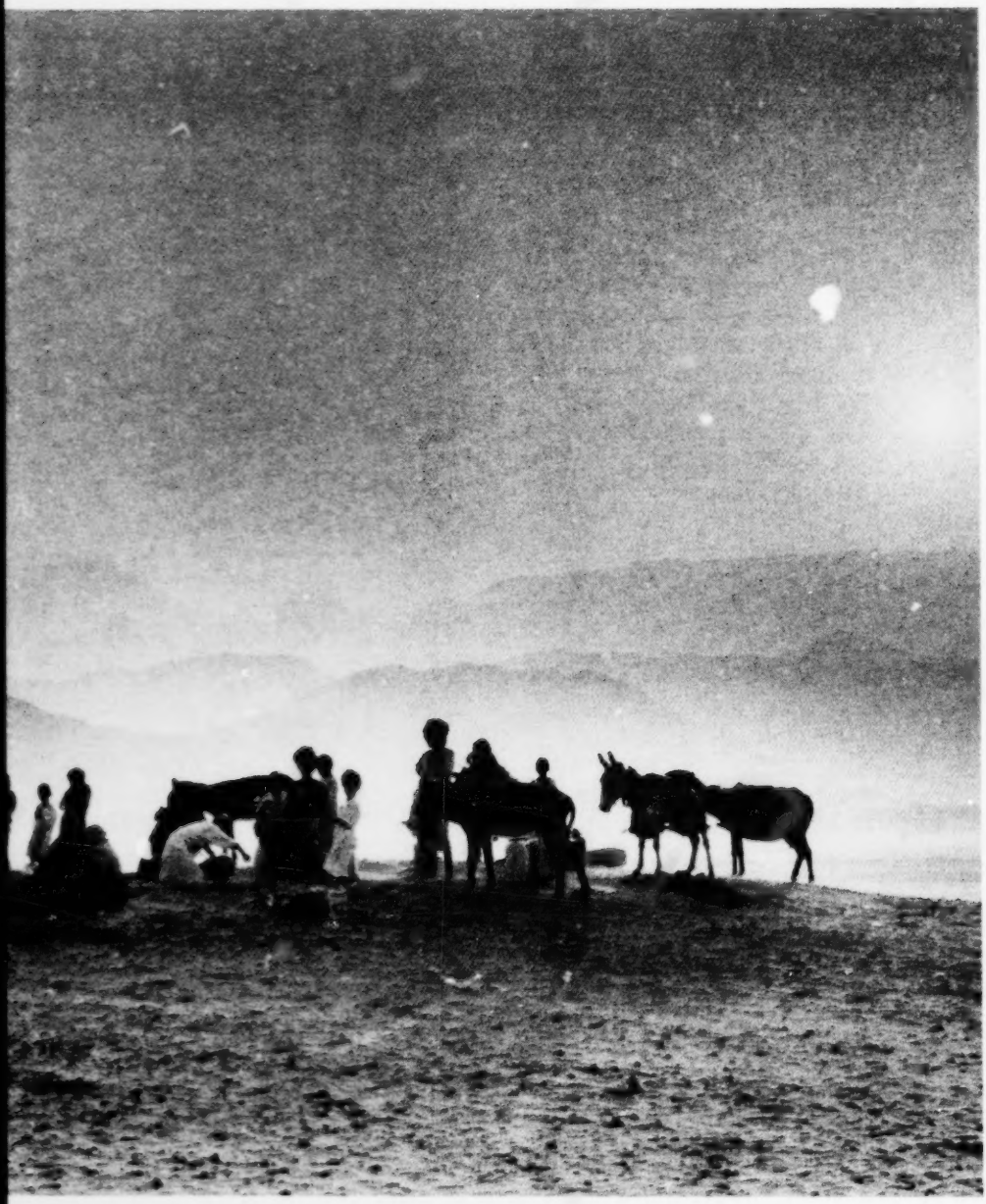


SEBASTIAO SALGADO/MAGNUM

Nepal's deforested uplands have "exported" millions of tons of valuable topsoil to India, washed away by monsoons.

Irrigation: solution or problem?

The other part of the land degradation problem is the availability and use of fresh water resources. These too have been plundered with little regard for future needs.

The world's irrigated croplands account for the lion's share of fresh water used every year – 73 per cent of total water withdrawals. The importance of irrigation, both to feed growing numbers of people and to provide an adequate living for rural populations, cannot be exaggerated. In India, for example, 30 per cent of the country's cultivated land is under irrigation, producing an impressive 55 per cent of the food output. Similarly, Pakistan has 65 per cent of its agricultural land under irrigation, producing 80 per cent of the country's food supply. Fifty per cent of China's

UN/JOHN ISAAC

croplands are irrigated, producing 70 per cent of all the food consumed.

Yet, at the same time as irrigated lands are expanding – most notably in Asia, South America and the European part of the Soviet Union – a disturbing trend is emerging worldwide. FAO estimates that half the total area of irrigated cropland may be in danger from three "silent enemies" – salinization, alkalization and waterlogging – that are slashing productivity. The answer is to use limited quantities of water with proper drainage. Unfortunately, water is treated as a free or unlimited resource, and there is little financial incentive not to waste it, or to manage flow or drainage; 70 to 80 per cent of the water withdrawn from a river for irrigation purposes may never reach its intended destination.

In a different but related sequence, unsustainable use of groundwater for irrigation has depleted supplies and lowered water tables. The final stage is land subsidence, which is now a major problem in 42 areas around the world.

Half the total area of irrigated cropland may be in danger from three "silent enemies"— salinization, alkalization and waterlogging.

Unfortunately, many countries which depend heavily on irrigation for crop production are precisely those where population growth continues to outpace productivity. In Pakistan, India, Nepal, Bangladesh, Laos, Cambodia, Vietnam and the Philippines, where population growth is 2 per cent or more each year – doubling their numbers every 34 years or less – population pressures contribute directly to the rush to bring more land under irrigation. Slowing population growth would give governments crucial time to implement sustainable farming practices – practices that would allow the integrated management of land and water resources.

Irrigation is critical for feeding growing populations and providing an adequate living for people in rural populations. This irrigation scheme is near Djenne, Mali.

Cash versus food crops

Cash crops typically take the best agricultural land; they also receive most of the available credit, fertilizers and pesticides, and agricultural advice. The trend towards cash crops, combined with population growth, pushes subsistence farmers into more and more marginal areas with poorer soils and less rainfall. These pressures are two of the major factors in the continued destruction of the Amazon rainforest, the largest repository of biological wealth in the world.

Women as food producers

Women account for half the food production in developing countries; in Africa, perhaps 75 per cent of the food is produced by women. Cultivation and harvesting is only the first stage. Twice as much time may be taken up by food processing and preparation. The time and energy required for these processes, and for the fetching of fuel and water (which may involve a walk of 10 kilometres three days out of four) rarely figure in national labour statistics. In addition, women do most of the soil conservation

STRATEGIES FOR INCREASING FOOD SECURITY

To stem falling per capita food production and resource degradation, and improve agricultural production, hard-pressed developing countries should undertake the following:

- **Establish comprehensive national population programmes;**
- **Provide integrated planning for future food needs that takes account of population growth, distribution, and rural-urban migration patterns;**
- **Implement sustainable development strategies that combat soil erosion and impoverishment, deforestation, falling agricultural output, and water mismanagement;**
- **Establish rural agricultural extension schemes that provide credit, seeds, fertilizers and advice to poorer farmers, whether men or women;**
- **Provide special agricultural and environmental extension services for and available to women, who do most of the land and water management in poorer areas of the developing world;**
- **Ensure that women can inherit, buy and have full legal title to land and that they have access to credit and marketing facilities;**
- **Emphasize education for women and girls in rural areas. Better educated women are more effective as farmers and environmental managers, and have smaller families;**
- **Encourage community development strategies, including the setting up of agricultural cooperatives, where essential services such as purchasing, marketing, soil and water conservation, water supply, health care and family planning, sanitation, housing and education can be integrated;**
- **Establish comprehensive and accessible programmes of maternal and child health care and family planning to reduce the size of families and improve the health and well-being of the entire community;**
- **Support research on the integration of traditional and emerging technologies for food production.**

RON GILLING

In Africa, about 75 per cent of the food is produced by women.

work. In Africa, for example, women perform about 80 per cent of all conservation work, including planting trees and building erosion control terraces.

The economic value of the unpaid part of women's double day at work and at home has been estimated at $4 trillion annually. But their central place in resource use and crop production has yet to be recognized by most governments. Women are not allowed to participate, other than in a rather peripheral way, in shaping their countries' economic and social policies.

As policies for sustainable development take shape, still more responsibility for husbanding resources and producing food will probably fall on women. Successful policies will secure their involvement from the outset, but will also ensure that development does not merely mean additional burdens for them.

The first step will be to recognize women's dual role; the second will be to ensure better nutrition, access to education and health care. Nearly half of all women of childbearing age in developing countries are affected by nutritional anaemia, compared with only 7 per cent in the developed world.

Also, by formally recognizing women's pivotal role in producing food and conserving soil, governments will be taking

a big step towards safeguarding food production. On a practical level, women need secure title to the land they farm; they need access to credit, seeds, fertilizers, and other agricultural extension services. It is vital that poor rural households be given more incentives, including better prices for their produce, to enable them to remain on the land and keep it productive.

But in order to do this, it is imperative that national population programmes and family planning services, including maternal and child health care (MCH), be made available to those women who lack access to them. In many areas of the developing world there remains a huge unmet demand for contraception. Ensuring women's health by implementing family planning services and MCH will not only bring down fertility rates but also mean that women will have more time to grow food and tend the land. With infant mortality reduced, there will be less need for women in the developing world to bear more children. And the downward spiral of large families, poverty, and landlessness can be broken.

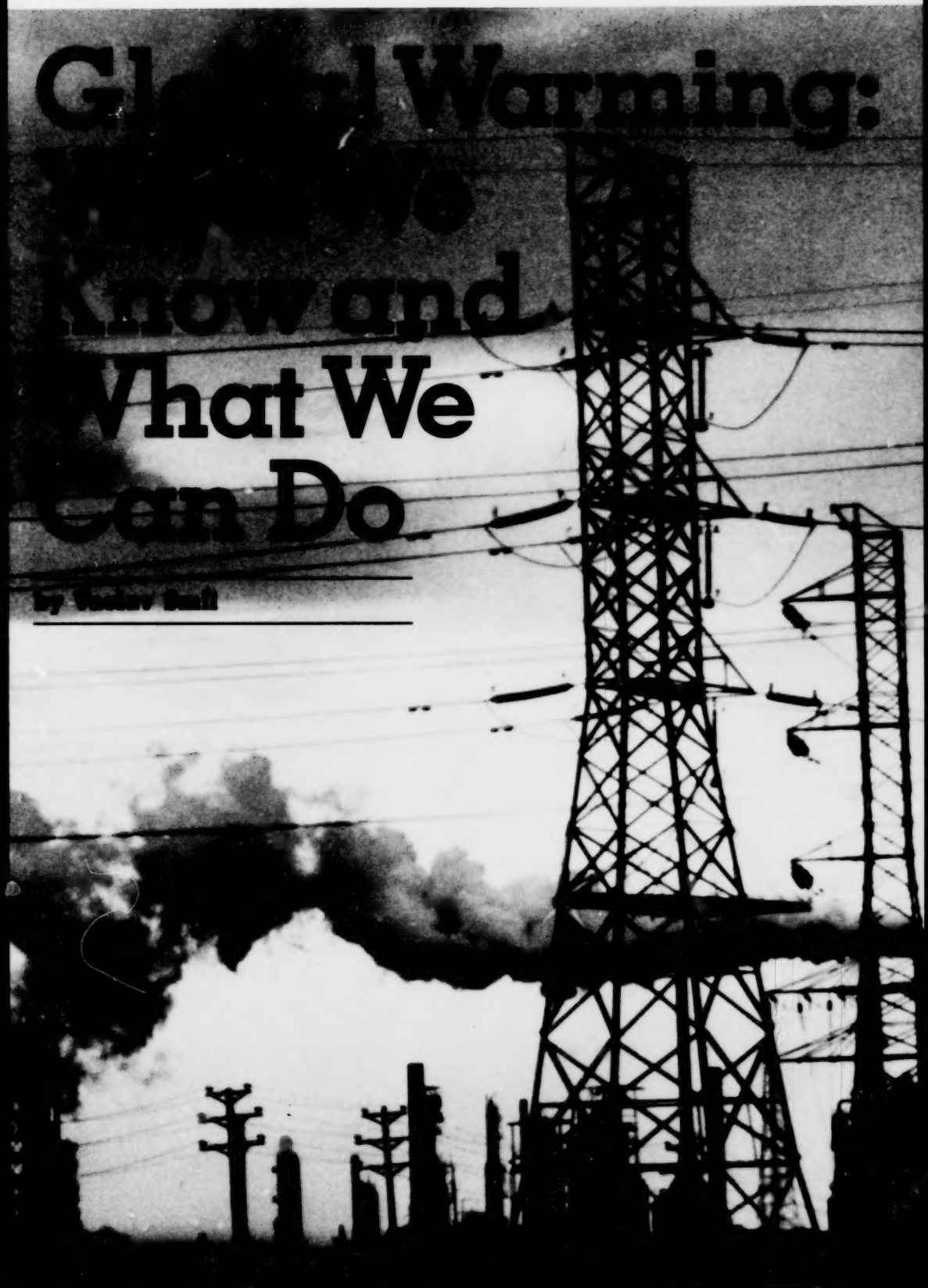
A way ahead

Agricultural production is critical to any sustainable future. But focusing on the agricultural sector alone without regard to other important factors which influence food production will certainly not tackle the problems. Only an integrated development approach will work – one which combines agricultural production with water management, soil conservation and afforestation schemes.

Genuine resource management would go a long way towards increasing crop yields, preventing land from getting degraded in the first place, and providing sustainable livelihoods for millions of rural poor. But husbanding natural resources will require an equal commitment to developing human resources. That means, among other things, extending population programmes and family planning services to the millions who lack them now. With such a combination there is a real chance of increasing food production while protecting the environment and easing the burdens of the rural poor.□

Global Warming: What We Know and What We Can Do

By Walter Sullivan



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The possibility of pronounced and relatively rapid planetary warming induced by man-made releases of carbon dioxide (CO_2) and other greenhouse gases has both intensified scientific interest and captured broad public attention. Whatever the actual rate of future warming and its identifiable ecosystemic and socio-economic consequences, apprehensions about man-induced climate change will be with us for generations to come.

Sensible appreciation of the basic realities and possible implications of planetary warming driven by accumulation of greenhouse gases therefore should be part of any well-founded appraisal of civilization's prospects for the next century. As our response will be determined not only by technical innovations and managerial abilities but also to a large extent by considerations having to do with population growth and size, the demographic realities must be considered alongside the biospheric complexities and technical options.

What we know for certain

Solid knowledge concerning the anthropogenic greenhouse effect is surprisingly limited. Only these facts are known with great or sufficient certainty: CO_2 has been an important controlling factor of past atmospheric temperatures; exponentially rising combustion of fossil fuels and extensive changes in vegetation cover since the beginning of the industrialized era have increased the atmospheric concentration of CO_2 by about 25 per cent, from around 250 parts per million (ppm) to just over 350 ppm; this accumulation continues at an annual rate of about 0.4 per cent; concentrations of several anthropogenic gases that absorb shortwave radiation even more effectively than CO_2 are rising at much faster rates, and their combined greenhouse effect is now about equal to that of CO_2.

Forecasts and uncertainties

The most frequently cited predictions about global warming are the results of American computer models showing the doubling of preindustrial CO_2 (that is, a concentration of 600 ppm or its equivalent composed of a lower CO_2 level and higher concentrations of other greenhouse gases) will raise temperatures by anywhere from 1 to 5° C. Such a warming would bring intensification of the global water cycle, accompanied by major redistribution of worldwide precipitation patterns, intensification of extreme weather conditions (cyclones, droughts), shifts in ecosystem boundaries, poleward retreat of sea ice, and appreciable sea-level rise.

Yet none of these conclusions can be translated into a firm quantitative prediction. All are no more than plausible, qualitative constructs based on inadequate understanding of complex realities. Temperature rise determining the severity and the extent of biospheric and socio-economic effects is the most critical variable, but its predictions come from models incapable of reproducing the intricacies and multiple feedbacks of natural phenomena. Computer simulations are either physically incomplete or include major errors, and their comparisons show not only many quantitative but even qualitative differences. Consequently, not all of these exercises can be correct, and all of them could be wrong.

These complexities have no simple, indisputable resolution. The coming decades will see a continuing clash of claims regarding the presence and extent of past CO_2-induced warming, the detection of incontrovertible signs of such a cause-and-effect relationship, and the degree of future biospheric impact.

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Risks and losses

In assessing the possible risks and losses arising from planetary warming, it is of the utmost importance that we recognize that global temperature averages are rather useless guides for assessing the impact of changes at the regional and local level. Current general circulation models, which produce questionable results even on a planetary scale, are clearly incapable of predicting with any reliability the location of the areas that would be most affected.

Furthermore, the rate of change will be no less important than its spatial peculiarities. Biospheric impacts and human responses to an identical climatic change would be different if experienced slowly over many generations than if change came rapidly over just a few decades. Risk assessment must thus take account of the uncertainties about the speed and degree of global trends as well as ignorance of site-specific effects.

For example, the best consensus puts estimates of the effects on sea levels of the melting of glaciers because of the doubling of pre-industrial atmospheric CO_2 at between 10 and 30 centimetres for glaciers and small ice caps; the same amount for the Greenland Ice Sheet; and 0 to 30 centimetres for the Antarctic ice. Consequently, the total sea-level change attributable to CO_2 doubling could be as small as 20 centimetres or as high as nearly 1 metre. Whatever the eventual actual mean rise, there would still be significant local departures that would be of greater importance in influencing outcomes than the precise extent of sea-level rise. The Netherlands, the classic case of a nation threatened by rising seas, would hardly notice a 20 centimetre rise; by contrast, repeated massive flooding in Bangladesh caused by cyclonic surges in the Bay of Bengal demonstrates that even lacking a rise in sea levels, a country cannot safeguard much of its low-lying territory.

Another uncertainty is the effect of planetary warming on human health. Slightly higher summer temperatures do not present any serious risk to healthy people; *Homo sapiens* has thermoregulatory capabilities unmatched by any other mammalian species. But a higher frequency and longer duration of heat waves would be a clear concern. Copious research documents excessive mortality – above all, among elderly people with cardiovascular and respiratory diseases – during heat waves lasting more than three days.

Still, any future global warming may pose greater health risks because of its effects on asthmatics (it could substantially increase the seasonal burdens of

temperature- and humidity-dependent allergens) and, above all, because of possible extratropical radiations of tropical diseases promoted by higher temperatures and humidities, longer breeding seasons, and shifts of ecosystem boundaries. Insect vectors and parasites transmitting and causing malaria, trypanosomiasis, leishmaniasis, amoebiasis and filariasis could then spread beyond their current boundaries. None of these heightened risks can be quantified today. Disease radiations and morbidity rates may increase only marginally – or they may become so prominent regionally as to necessitate vigorous countermeasures. It must be noted that there could also be some welcome changes, most notably the higher productivity of crops. Doubling of pre-industrial concentrations would increase average crop yield by roughly 30 per cent, and the benefits would not end with higher productivity, as there would also be about a 30 per cent increase in the water-use efficiency of all plants, as well as lowered photorespiration, substantially improved symbiotic fixation of nitrogen in leguminous plants, increased resistance to lower temperatures and air pollution, and a better tolerance of soil and water salinity. The combination of the responses could mean that all major crops would yield more in their current environments while using less water, or that they could be grown in areas today considered too arid for continuous field farming, or that they might still be able to outperform current yields in those regions where precipitation had declined as a result of planetary warming.

But even the best imaginable benefits accruing to crops and other plants from a CO_2-richer, warmer biosphere would still be accompanied by a variety of unwelcome changes, ranging from destabilizing shifts of natural ecosystem boundaries to higher frequency of extreme weather events. Evidence at hand does not allow us to affirm that higher photosynthetic productivity would be of greater benefit to global civilization than the worst-case scenario losses caused by other environmental changes that would be precipitated by global warming. So, what are we to do?

Responses and challenges

We may always be trying to do too little too late, but the possibility that we may be doing too much too fast cannot be excluded either. Should we wait, or should we act? Waiting until we know enough and then acting with the requisite vigour is generally a rational response in complex affairs, but in this case it may be both imprudent and insufficient

A major reduction of greenhouse gases would be impossible without reversing current levels of deforestation. Large areas of Brazilian rainforest have been cleared for pasturing cattle.

to prevent major socio-economic upheavals. More important than the obviously problematic question of what is enough is the recognition that long lead times characterize both biospheric responses and the effectiveness of major civilizational adjustments. Basically, waiting amounts to gambling. It carries a risk of acting too late in the game. Therefore, should not a prudent, risk-minimizing strategy assume that all the circumstantial evidence is sufficiently alarming to start acting now and that, given the nature of the problem, the response must be correspondingly dramatic and on a grand scale?

If so, nothing is of greater importance than to start immediately to reduce greenhouse gas emissions. This challenge is made easier by a truly astonishing worldwide potential for technical and social changes. Foremost among this potential are the still far from exhausted opportunities for lower energy consumption in all industrialized nations, as well as in industrializing countries.

If we decide that the existing perception of possible risks is sufficiently alarming to justify a programme of active prevention, we would have to face a number of unprecedented difficulties. Neither the relatively concentrated distribution of greenhouse gas emissions nor an array of international treaty precedents will be particularly helpful for embarking on a speedy course of reducing greenhouse gas emissions. Moreover, the impressive potential of existing and forthcoming technical innovations and social adaptations will be greatly circumscribed by both the per-

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sistent irrationalities of our economic arrangements and the basic necessities of expanding global population.

Given the current make-up of gases and other sources contributing to planetary warming – about 57 per cent from fossil fuels, 17 per cent from chlorofluorocarbons, 3 per cent from various industrial processes, 14 per cent from agricultural activities, and 9 per cent from land use changes – even some very large emission cuts by major offenders would translate into only minor reductions. For example, an immediate 30 per cent reduction of CO_2 emissions in the United States would cut global greenhouse emissions by less than 4 per cent, and even the instant cessation of Brazilian deforestation, which releases half of all CO_2 emitted by land use changes, would cut only about 4 per cent of worldwide production of greenhouse gases.

Moreover, the coming decades will see a further deconcentration of national contributions to the global total of greenhouse gases. This will be an inevitable consequence of, in the rich countries, very low population growth rates, continuing energy conservation gains, and the stabilization of major ecosystems and, at the same time, of high birth rates, gross energy conversion inefficiencies, huge unfilled fuel and electricity demand, and large-scale deforestation throughout much of the poorer world.

This shift is best illustrated by changes in the global distribution of CO_2 emissions from fossil fuels, the most accurately known anthropogenic generation of a greenhouse gas, forecast over the next 30 years. Assuming that by the third decade of the twenty-first century the combination of conservation and the gradual adoption of alternative energy sources would reduce the rich world's per capita fossil fuel consumption by about 20 per cent and that during the same period the poor world's unacceptably low per capita use of these fuels would double, the global generation of CO_2 from combustion of coals and hydrocarbons would be split between the "haves" and "have-nots" – a major change from the current status in which the rich countries are dominant.

In addition, it is obvious that while a promising start could be made immediately with the participation of the 10 largest industrialized nations in a coordinated abatement effort, an effective long-term response will require global participation.

This is even more imperative when one considers the additional CO_2 being added from the increasing deforestation and burning of grassland to clear it for agriculture. Moreover, enormous complications will slow any quest for a worldwide modification of measures to cut emissions of greenhouse gases. All agreements cited as encouraging precedents were far easier to conclude than would be a treaty in this domain. Only the control of chlorofluorocarbons would be relatively straightforward. Substantial reductions of CO_2 emissions from fossil fuels will require nothing less than a far-reaching modification of the dominant energy base of industrial civilization – and its eventual replacement by non-fossil energy conversions.

Unless such measures were global

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they would be economically highly disruptive, as countries with national consumption limits or with taxes discouraging fossil fuel combustion would become less competitive or less well off than the producer countries. An equitable division of controlled contributions would be a daunting task. There would be no escape from the ethical dimensions of the challenge. Any serious attempt at an equitable apportioning of national allowances would be a recurrent confrontation of moral dilemmas. The wasteful habits of North America and the less flagrant but still clearly extravagant ways of most European nations and Japan are the most obvious – and for the sake of effective global solutions, the most prominent – candidates for a far-reaching transformation. But the world's largest per capita emitters of CO_2 are not only the conspicuously consuming Americans and Canadians but also the much poorer but grossly inefficient Czechs and Russians.

Would these countries be willing to adopt the same relative emissions cuts as the two rich North American nations? Yet in the long run there could be no alternative. Effective global response would demand not only further technical improvements and a moderation of Western material overindulgence but also profound economic reforms in the centrally-planned economies. Nor could the poor nations be treated leniently, especially when considering their almost uniformly dismal conversion efficiencies. Lack of any emission standards and poor maintenance means that a single car in Bangkok or New Delhi may release more nitrogen oxides, and hence be responsible for adding more O_3 to the troposphere, than a score of cars in Kyoto or San Francisco. And a small Chinese fertilizer factory synthesizing unstable ammonium carbonate from coal may use up to four times as much fuel per unit of nitrogen as a modern Dutch or Texan plant producing ammonia. Furthermore, one cannot ignore the contribution of increased CO_2 resulting from the destruction of tropical forests. A major reduction of global CO_2 emissions would be impossible without reversing current levels of deforestation.

Demographic imperatives

A formidable array of technical, economic and social changes and innovations will have to coalesce in order to avert dangerously destabilizing planetary warming. And these advances would still be insufficient without effective long-term controls on population growth. Looking just to the year 2020, the United Nations medium projections forecast a population 14 per cent larger in the rich countries and an increase of 83 per cent in the less developed world. Just maintaining the current rates of fossil fuel consumption on a per capita basis means that population growth alone would boost global use by about 30 per cent. This means that even if we were able to reduce today's rates of consumption by a quarter on a per capita basis through improved efficiency, conservation and the substitution of other fuels, we would still not reduce global consumption in the years to come because of future population growth's increased demand.

Maintaining the current rates of fossil fuel consumption throughout the poor world will extend the hardship to another 3 billion people. If their consumption increased by 50 per cent (still only one sixth of the rich world's current mean) and this increase were accompanied by a 25 per cent reduction in consumption by all rich countries, the global 2020 total would still be one quarter higher than the current rate. Doubling of the poor world's per capita fossil fuel use would, even with a 25 per cent reduction elsewhere, boost the global aggregate by more than half.

Clearly, the prospects of substantial reductions in the aggregate global rate of fossil fuel consumption during the next generation are highly unlikely. Maintaining the current rate would be a "success" – but one achieved at the price of continued impoverishment outside North America, Europe, Japan, Australia, and a handful of smaller newly industrialized countries in Asia. Dictates of population growth will also make reductions in fertilizer use impossible. With a roughly 50-50 split of

nitrogen fertilizer use between the rich and poor countries, mere maintenance of current rates would require about a 50 per cent increase of applications by the year 2020. If the rich countries would cut their per capita use by one third and the poor ones by one tenth, the demand would still be 20 per cent higher.

The expected population growth would thus completely swamp even some very impressive intervening gains resulting from technical innovation, conservation, and social adjustments. Even now, with evidence unclear and conjectures abounding, we hear exhortations for effective controls. Should there be unmistakable proof of rapid anthropogenic warming later in this decade or early in the twenty-first century, these demands would intensify – but they would not be effective without the recognition that

A rise in sea level from melting glaciers is an anticipated consequence of global warming. But global averages would be useless for assessing the regional and local impact of such a change. An increase of just 20 centimetres might have little effect on the Netherlands, for example, yet devastate Bangladesh.

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There is no excuse—economic, technical, social, or ethical—for not opting for extensive energy conservation, farming without excess, or recycling waste products and materials. Such goals should be pursued without waiting for the enactment of global accords based on dubious scientific grounds.

rapid stabilization of global population must be a priority.

The need for an accelerated demographic transition for the poor world cannot be contemplated in isolation. Simple arithmetic suggests that the main burden of these reductions would fall primarily on seven nations (India, China, Nigeria, Pakistan, Bangladesh, Brazil and Indonesia) where 50 per cent of the projected increase in world population is expected to occur. If pressure to reduce and eventually stop population growth originates from concern about the negative effects of planetary warming, it is difficult to imagine those countries taking action without the concurrent contribution of the world's seven richest nations, which consume four fifths of all fossil fuels and will remain dominant producers of greenhouse gases during the next 20 to 40 years.

Those less developed nations currently growing rapidly at more than 2.5 per cent a year may find that the threat of rapid planetary warming will be used, by the rest of the world, to pressure them into finally adopting some effective population control measures. At least this is clear: The world searching for an effective response to planetary warming would have to have enough determination to combine major population growth cuts in large poor countries with major reductions of consumption in the richest nations.

That a strong consensus on the degree and timing of such profound, complex, and potentially destabilizing (both in social and economic terms) changes could emerge through a series of inter-

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national treaties, whose preparation is currently favoured by many national and international governmental and scientific bureaucracies, is highly

Concern about global warming could be a catalyst for positive change if it leads to policies to stem population growth.

unlikely. And even if there were agreement on the desirability of those transformations, where are the mechanisms needed to enforce such unprecedented measures? This is uncharted territory in national policy-making and international cooperation, and only the threat of an acute crisis will show how far and how fast a new globalism would spread.

A better and more immediate approach is the pursuit of less encompassing, but eventually probably more successful, national strategies in which reduced emissions of greenhouse gases are just one, albeit a leading, component of a wider effort to live within biospheric limits. This indirect approach is superior fortuitously because while its goal is the reduction of planetary warming, it has other benefits – such as preservation of soils, forests, and species diversity – that are ultimately much more important for the civilization's long-term survival than preventing a temporary rise (of decades, or possibly a few centuries) in tropospheric temperatures.

This legitimizes the need for an array of vigorous actions, without confronting and resolving the multitude of scientific uncertainties that surround the greenhouse effect, or becoming preoccupied with temperature trends, clear warming signals, and the reliability of computer models. Policies tied to these considerations may wax and wane with short-term climatic fluctuations – (Where will the commitment be after a decade of cooling, which may presage a longer cooling trend or may be just a temporary dip in a long-term rise in temperatures?) – and with changing scientific and public perceptions. Moreover, single issue initiatives are not easy to sustain. However, the indirect, planned approach does not need to confront any single threat in order to succeed.

There are no excuses – economic, technical, social, or ethical – for not opting for extensive energy conservation, for farming without excess, for achieving high rates of recycling waste products and materials. Such goals should be pursued by all responsible nations without waiting for the enactment of global accords based on dubious scientific grounds. Should global warming become a real concern, these conservation efforts would be an outstanding foundation for a more aggressive response, and the absence of pronounced warming would not invalidate the major environmental and social gains brought by those commitments.

In order to maintain reasonable comfort in a livable environment we should not base our decisions on the absence or presence of climatic threats. Steps which may have to be taken to counteract and minimize the effects of possible future planetary warming should be extensively promoted and assiduously applied regardless of the coming temperature profile.

Quintupling of global population since the early 1800s and unsustainable growth of material consumption among the richest fifth of mankind have been responsible for extensive environmental degradation. The threat of planetary warming is just one, albeit potentially very serious, manifestation of this worrisome trend. Technical fixes, better management, and international cooperation will help, but an effective solution lies only in a combination of stabilized populations and moderated consumption.

If the concerns about planetary warming will help to bring some sanity into the craven pursuit of economic growth and personal affluence throughout the rich world, and if they will aid in promoting control of population growth and responsible developmental policies in the poor world, then a warming trend might be actually an effective catalyst for desirable change. □

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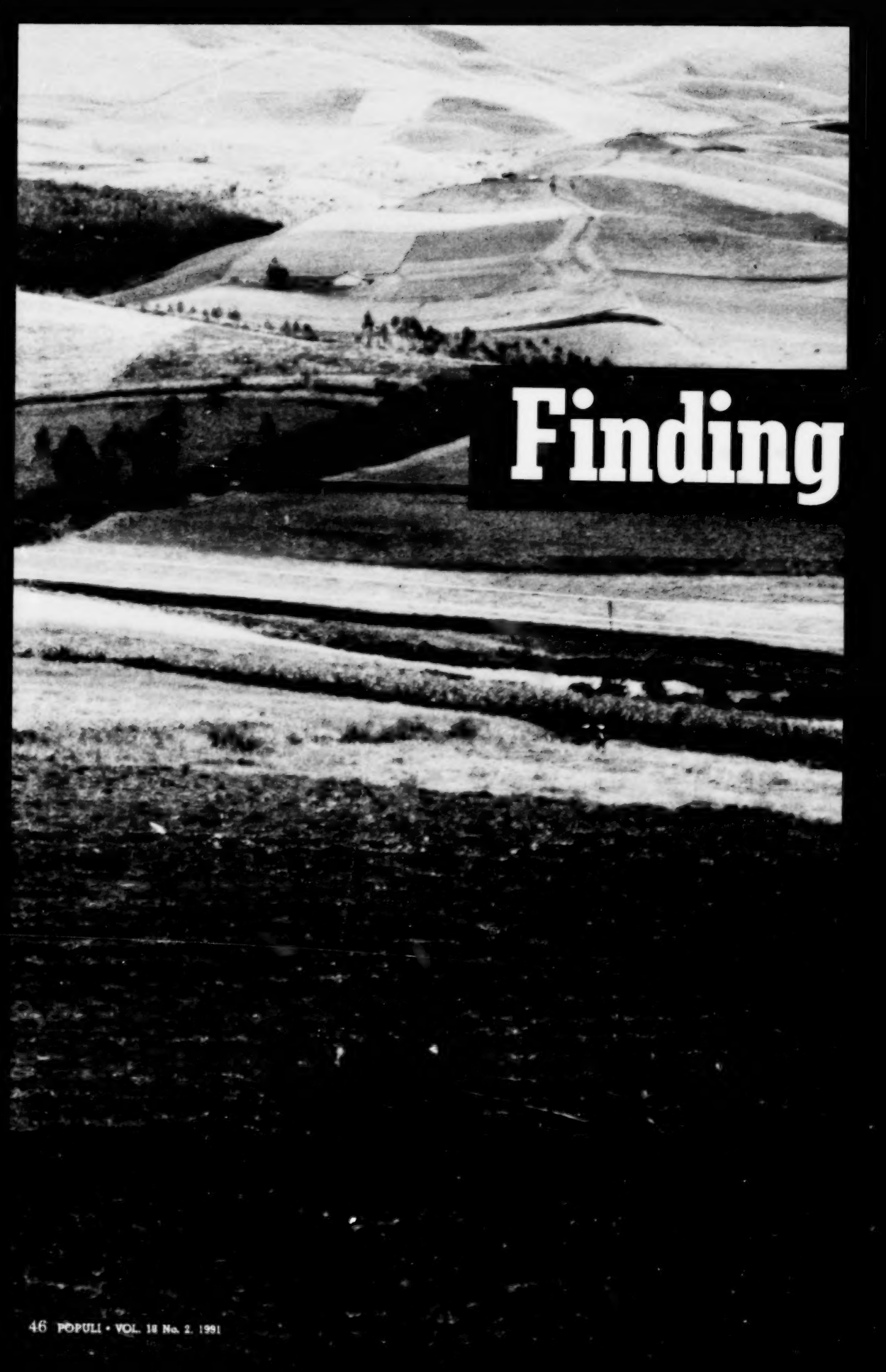

Finding

Rural development is the answer to population problems. We need a rural development programme which is based on agriculture in order to create employment opportunities and stimulate local economies.

the Balance

by Takashi Sato

As we are painfully aware, the resolution of the problems of population and development requires a balanced solution to all related and diverse problems including food, global environment, natural resources and energy, economic and social development as well as to issues concerning population distribution such as urbanization and rural development, aging and population structure, employment, educational opportunities, status of women and children's rights. These are issues which must be resolved if humankind is to achieve lasting peace and prosperity. They require long-term commitment, as none of these can be solved overnight. Needless to say, these global issues can hardly be resolved by one nation.

I have constantly maintained that rural development is the answer to the population problems. Rural villages in the hills and fishing communities must become part of dynamic economic activities. Because of the excessive concentration in one megalopolis, in Japan we suffer from the depopulation of rural villages and overcrowding of our cities. Projects designed to develop rural communities create new problems as they are often centred on leisure and sporting facilities. I am convinced that we need a rural development programme which is based on agriculture in order to create employment opportunities and stimulate local economies.

For this we must consider how international cooperation can contribute to the fields of technology and investment for rural development. Given that agriculture is closely interlinked with regional development and protection of the environment, it is essential that we maintain a system which supports local production of basic foodstuffs and dependence on stable supplies from overseas to supplement domestic production. Only in this way can we ensure people's livelihoods and a dynamic development of local communities. Without this, there can be no development for countries or peace in the world.

Concentration of urban population is not just a Japanese trend. It is said that by the end of this century almost one half of humanity will be living in cities and that in the twenty-first century our

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world will be more or less an urban society. We witness the emergence in the world economy of the ASEAN countries, particularly the dynamic Asian economies. Thailand, among others, is promoting a dual-track programme maintaining both agricultural development and industrialization. In the background to this programme is the fact that 58.3 per cent of the labour force is engaged in agriculture. Thailand enjoys a self-sufficiency rate of food of 200 per cent, and exports half its agricultural produce as a superpower producer. Thus, Thailand cannot necessarily be considered on the same ground as other nations in Asia, but pursuing industrialization for processing agricultural and fishery products using the primary produce they have in abundance will help solve the problem of population distribution.

Despite the fact that world food production has reached an unprecedentedly high level, there are areas in the world where supply is not sufficiently stable. Of the economically active population, more than 730 million people are not eating enough food, and as many as 1 billion, representing 20 per cent of the world population, are said to be suffering from poverty and starvation. Increased production of food is a result of dramatic improvements in productivity. The increase in population, in most of the areas in the world, means a decrease in the per capita acreage cultivated. The increase in population and decrease in available land for agriculture can lead to deforestation.

Demand for food expands as population and income increase, and the form consumption takes also changes. By the end of this century, it is expected that the world will be populated by approximately 1.3 billion more people than today. However, the World Commission on Environment and Development points out that, among the factors behind the increasing demand for food, increased income represents 30 to 40 per cent in developing nations and approximately 10 per cent in industrialized nations. To respond to the situation, they say that the world's food supply capacity must be increased by 3 to 4 per cent annually for several decades to come.

To improve the food supply capacity of the whole world, distribution should also be considered together with better productivity. It will be necessary to further improve the situation of food markets, strengthen transportation capacity, and place the focus on food policy in countries or regions where there is insufficient food supply.

The Gulf War added to the turbulence of international society, and voices are being heard calling for a new order and coordination in every respect. Also, the advanced information society has been bringing countries increasingly closer and making mutual influences stronger.

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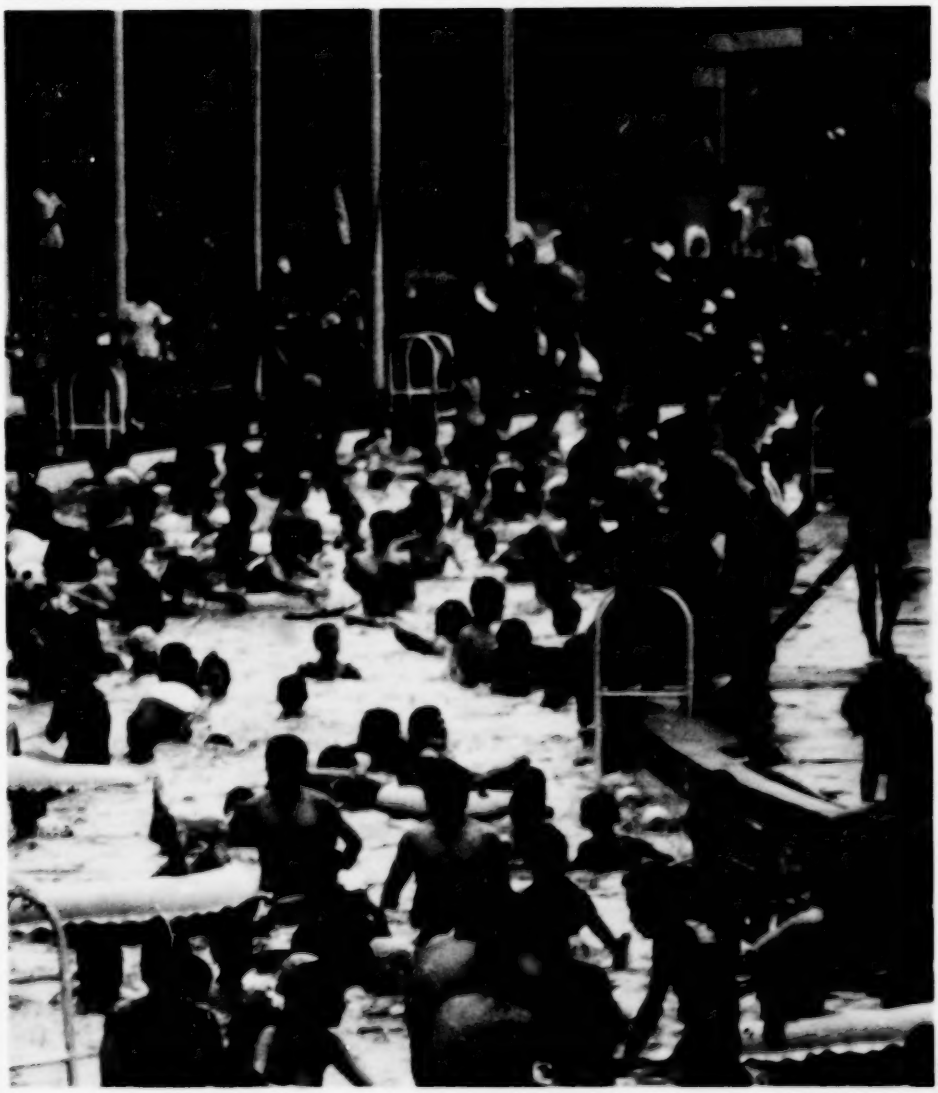
Given such circumstances, there is always demand for an approach to problems from a global viewpoint. The problem of population and development is

Migration from rural villages has resulted in overcrowding of many major cities. Here, swimmers in Tokyo enjoy a dip.



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one of the areas which requires an interdisciplinary and diversified approach to find a solution. Those working in the field of policy-making should be prepared to listen to the voices of intellectuals in various fields and should be determined to act courageously.

Asia has diversified races, religions, and cultures. However, our mutual trust has brought us a common base as Asians, and it will be further strengthened. Therefore, let us first work to solve various problems related to population and development including the issues of food and environment in preparation for the twenty-first century. This is a task we all have. □

This article was adapted from Mr. Sato's last public appearance, his address to the Seventh Annual Parliamentarians' Meeting on Population and Development, Seoul, Republic of Korea, 25-26 February 1991.

Pulse

Family planning programmes and self-sufficiency

The quest for "self-sufficiency" in international assistance programming has become fashionable. In the apparent belief that programmes serving the basic health needs of the world's poorest people can be turned into mini-Marshall plans (analogous to the economic recovery strategies of post-war Europe), more and more international donors, spearheaded by the U.S. Agency for International Development, are stressing financial self-sufficiency as an important characteristic of international assistance programmes.[1] This focus, when applied to preventive health care, is misplaced for at least four reasons:

- It encourages a belief in will-o'-the-wisps, substituting unsubstantiated hopes ("self-sufficiency") for reasonable expectations (cost-effectiveness, for example), resulting in distorted policies.
- It shifts the emphasis – even when conscious efforts to the contrary are made – away from the poorest beneficiaries to middle-income and even upper-income beneficiaries.
- It reverses the time-task priority sequence for development programmes, which calls for starting the most time-consuming tasks first. Instead, a self-sufficiency focus makes it more likely that the most difficult jobs will be left for last.
- An over-emphasis on "self-sufficiency" distracts programmers from the more important tasks of providing the services they were trained to provide.

The idea that we can recover from the world's poorest peoples a substantial portion of the costs of their own health care – particularly preventive health care – is based not on sound reasoning but on wishful thinking. We need to stop wishing and face a few simple truths.

First, low-income citizens of developing countries will always need subsidized health services, particularly in the family planning area. This is not only because they are poor, but because preventive health care measures are seldom a high priority for people living near the subsistence level. Food, shelter, and curative medicine come first: survival demands it. This point seems so obvious that *The Lancet*'s editors recently characterized as "patently ridiculous" the idea of self-sufficient family planning programmes "for people who struggle to survive on a dollar a day."[2]

All of the world's wealthiest societies subsidize health care for their low-income citizens, most of whom are enormously affluent by less developed country (LDC) standards. In light of this, to expect the poor of developing countries to pay the full costs of their health care seems ludicrous.

Subsidization of such services does constitute a developmental investment. Low-cost family planning, like disease eradication and education, strengthens both families and societies.

Second, "self-sufficiency" is promoted as one of the ways of phasing out development assistance programmes. But won't such assistance continue? Apart from a genuine desire among the people of industrialized countries to provide international assistance for humanitarian reasons, foreign aid is in the long-term self-interest of the wealthier nations. Not only do powerful special interests (like the farm lobbies in the United States) benefit directly from certain of our foreign assistance programmes, but it is increasingly recognized that the improved economic well-being of the LDCs will serve the economic interests of all: More prosperity abroad means bigger markets for everyone. It therefore seems foolish to base our programme policies on the assumption that important developmental efforts like family planning will be phased out any time soon. Far better that we should work to maintain these programmes and to make them more effective.

Next, it is incorrect to describe "self-sufficiency" as occurring when one source of subsidy is substituted for another. Financial self-sufficiency for a particular activity means that the consumers of a product or service pay the full financial cost of that product or service. The fact that we may be able to persuade another government or another agency to share the cost of subsidizing such services, admirable as they may be – and it usually is – has nothing whatever to do with "self-sufficiency."

Finally, our intellectual laxity on this matter is increasingly exhibited in such phraseology as "working toward" self-sufficiency. One frequently hears that, while we may not be able to achieve "complete" financial self-sufficiency for a given activity, we can "do more" or "work toward" such a state of affairs. This is doublethink. The fact that some family planning programmes, for example, are able to recover some portion of their operating costs from customer payments may be wholly appropriate and desirable. This has nothing to do with working toward self-sufficiency if the programme or activity is based on serving the health needs of the poor. "Cost-effectiveness" is relevant and important. "Cost recovery" may be useful. But these do not constitute steps toward self-sufficiency in a programme whose very premise is that the poor need, and will continue to need, subsidies for certain priority things.

The concern with self-sufficiency tends to shift the focus of development programmes away from the poor toward the middle- and even upper-income classes. Donor-supported family planning and related health services should always be priced to be affordable to the poor. The rich can take care of themselves. They do not need international assistance. While there is nothing wrong with providing different contraceptives at different prices in order to make contraceptives more available generally (and to invite higher-income people to pay a higher price rather than to take advantage of the subsidy intended for someone else), this never relieves development programme administrators from the absolute necessity of keeping their fundamental focus on activities that the poor can afford.

The time-task priority chart, sometimes called a PERT chart, is a device that permits managers to assess those tasks that will take the longest and should be started first. If, for example, a programme's objective is to increase contraceptive prevalence in a particular society, it makes sense to begin the work of reaching the hardest-to-reach clients from the first. This normally means the lowest-income, most remote rural consumers.

The "self-sufficiency" focus turns this around. By stressing cost recovery, programmers automatically tend to swing their attention toward consumers with high income because these are the ones who can most quickly provide movement toward self-sufficiency. The more remote populations, on the other hand, who require a greater expenditure per capita to reach, are the very ones whose participation in a family planning programme is usually most important. If programme plans include these poor rural consumers from the outset, as they should, an obsession with "self-sufficiency" will become impossible, as it should.

Finally, if we ask programme managers to generate income, we are asking them to vitiate their expertise and their focus. Generating income is not always compatible with providing optimum services. This is not to suggest that family planning programmes should be unbusinesslike. On the contrary, such programmes should be run with vigorous attention to cost-effectiveness and maximum efficiency.

Self-sufficiency is an appropriate point of focus for *economic* assistance programmes that have economic activity as their central purpose. However, when it comes to *social services* like health programmes and family planning, self-sufficiency simply does not apply. For these activities we must ask: How many people are we reaching? At what cost? Do the results contribute to a more prosperous, healthier society? Happily, family planning programmes are especially susceptible to this kind of analysis. Cost per acceptor and, especially, cost per couple-year of protection can be calculated for almost all programmes, providing a very vigorous cost-effectiveness yardstick.

These are the fundamental questions for social

service programmes. "Self-sufficiency" should simply be dropped from the family planning lexicon.

NOTES

1. See, for example, "Self-sufficiency in CSM," *Social Marketing Forum*, No. 16 (Spring 1989), p. 3.
2. The comment appeared in the editorial "Nothing is Unthinkable," *The Lancet* 335, 8716 (15 September 1990), pp. 659-661.

–Excerpted from "In Poor Countries, 'Self-Sufficiency' Can Be Dangerous To Your Health," Philip D. Harvey, Director for Africa Programmes, Population Services International, ***Studies in Family Planning,*** *Vol. 22, No. 1, January/February 1991, pp. 52-54.*

Higher literacy, lower fertility

Increasing literacy among the women of India has been an important factor in reducing their fertility, according to a researcher at the East-West Center in Honolulu.

"Research in India supports the growing recognition that in developing nations, progress toward literacy will help governments reach fertility reduction goals", said Robert Retherford, research associate with the Center's Population Institute. He is the co-author of a recently released publication, "Effect of Female Literacy on Fertility in India", with O. P. Sharma, deputy director of census operations in the Registrar General's office.

The Indian studies, part of a five-year cooperative project between the East-West Center and the Office of the Registrar General, could help India control the childbirth explosion that has swelled its population beyond the 840 million mark, making it the world's second most populous nation, Retherford said.

China, with more than 1 billion people, is the world's largest nation, but some demographers believe India, with a 2.1 per cent annual growth rate, will pass China in the next century.

In the latest EWC-Indian Government studies, researchers examined data from 326 Indian districts in 14 States, covering more than 90 per cent of the nation's population. Retherford said that in districts where a high proportion of women could read and write, the average number of children per woman was considerably below that of districts where literacy levels were low.

"The studies also showed that in high-literacy districts, a greater proportion of children survived infancy", he added. "Lower child mortality contributed to lower fertility rates. Thus directly and indirectly, higher female literacy resulted in lower fertility.

While the results are encouraging, there still is room for improvement, according to Retherford.

"Only about one Indian female in four was literate in 1981", he said, noting that the percentage drops even lower in rural areas, where the majority of Indians live.

The Indian Government has been aware of the situation for many years, and the overall literacy rate rose from 5 per cent in 1901 to 36 per cent in 1981, Retherford said. But although the Government of India "has long espoused the goal of universal literacy and education, attainment of this goal is still a long way from being accomplished", he noted.

–The East-West Center, Honolulu, Hawaii.

Fotonovela presents information on voluntary sterilization

In her story, Lupe tentatively brings up the subject of sterilization to Antonio, her suspicious husband. In his story, a perplexed Antonio discusses male sterilization with a friend at work. Lupe and Antonio are a couple trying to make decisions about their contraceptive needs after their family is complete. They are the main characters in "Novela de Amor", a two-

sided, two-storied Spanish fotonovela about male and female sterilization recently published by the Association for Voluntary Surgical Contraception (AVSC), a not-for-profit organization that believes men and women everywhere should have access to safe and voluntary surgical sterilization. "Para Mujares" is Lupe's story, and "Para Hombres" is Antonio's.

"Novela de Amor" (Novel of Love) presents information about voluntary sterilization in a culturally appropriate manner for Hispanic men and women. Like its cousin the comic book the fotonovela tells a simple story with balloon text, but it uses photographs as illustrations instead of cartoons. It is a popular format throughout Latin America, in the southwestern United States, and in other areas where there are large Spanish-speaking populations.

Focus groups of Latino men and women in California helped to develop the novelas by sharing their knowledge and fears about sterilization, previewing the concept and stories, and discussing the motivations and feelings of the characters. Each story ends with a simple review of basic information about tubal occlusion and vasectomy, and includes issues the focus groups wanted clarified.

—Association for Voluntary Surgical Contraception, New York, N.Y.

Sterilization, the leading contraceptive—by default

Traditionally, women trying to avoid pregnancy turned to a variety of home remedies, from herbal teas and charms to strong massaging of the uterus, vigorous exercise, and esoteric positions during intercourse. Couples today, however, are relying less on culture and more on modern technology.

Surprisingly, the most widely used form of contraception worldwide is not the pill, spermicide, or condom, but sterilization. This highly effective method is the leading form of birth control in countries as disparate as India and the United States, relied on by close to one out of five fertile couples around the globe.

About 340 million couples use modern contraceptives: sterilization, the pill, IUDs, long-lasting progestin injections (like Depo-Provera), condoms, or spermicides. But this entire range of options is rarely available, so couples in many countries rely heavily on only one or two forms of birth control, sterilization being the most commonly used. In Nepal, where contraception is rare and fertility is high, sterilization makes up about 87 per cent of all contraceptive use. The pill and condom make up only 6 per cent each.

Because sterilization has very low failure rates, it virtually ends all childbearing. As a result, it can have a marked effect on a country's birth rate, provided the operation is undergone soon after a couple has had all the children they want. A 1977 study in the Philippines found two births were averted for each sterilization, while studies in other countries have documented a similar effect on the birth rate.

In part because it is so successful a contraceptive, sterilization has been abused. Programmes to rein in population growth in China and India resulted in coerced sterilizations. From 1976 to 1977, when the Indian Government's feverish efforts to control population peaked, more than 8 million men and women were sterilized. By the end of 1977, a change in government and outrage over civil rights violations had brought the number of newly sterilized people to below 1 million.

Since then, the numbers have slowly increased to around 4 million. The Bangladesh Government's sterilization programme has attracted criticism because up until 1988 it paid freelance "motivators" to persuade men and women to undergo the operation, even going so far as to bring them into the clinic. The motivators fished for clients among the pools of the poorest.

Despite its checkered past, female sterilization still has a number of advantages. In the Third World, sterilization may improve women's health by ending pregnancies that are arduous and fraught with complications. The procedure can be performed immediately after

delivery or cæsarean section with minimal added risk, it is unrelated to the act of intercourse, and it does not require repeated visits to a clinic for new supplies.

With the development of new techniques of sterilization, dangers of the operation have fallen further. The minilaparotomy, for instance, requires only a small incision to insert clips or cauterize the fallopian tubes, and is typically performed without general anesthesia. But vasectomy, a procedure where the man's spermatic duct is blocked or cut, is still safer.

Vasectomy is an office procedure, performed without general anesthesia and costly equipment, that poses no threat to vital internal organs. The Chinese recently developed two new techniques for vasectomy, the first of which seals a man's spermatic duct with a plastic plug. The second operation, called no-scalpel vasectomy, severs the spermatic duct but does not require an incision to do so. The deceptively simple technique leaves a barely visible puncture mark, causes little bleeding or swelling, and presents only a slight risk of infection.

Regardless of the advantages, vasectomy continues to be much less common than female sterilization. In the developing world, four-and-a-half times as many women are sterilized as men. In the United States, roughly twice as many female sterilizations as vasectomies are performed each year. Only in the United Kingdom, India, the Netherlands, and possibly France do the number of sterilized men equal or exceed the number of sterilized women.

There are several reasons for this disparity. Most important, irrational male fears of castration and mutilation endure, especially in the Middle East and Africa. A study of attitudes toward voluntary contraception in Kenya found men united in their opinion that vasectomy was not a contraceptive option. These men thought vasectomy would lead to impotence or a poor sexual showing with their wives, which they said would lead the women to seek other partners.

Fear and disapproval aside, there are significant drawbacks to men and women relying on sterilization as a form of effective birth control. The disadvantages of sterilization become clearer when a child dies or the spouse who has undergone the operation remarries and wants more children. Yet countries that rely heavily on sterilization are some of the same countries where children's lives are the most tenuous.

In Bangladesh, India, and Puerto Rico, women's birth control choices are strictly curtailed by a lack of options. Many are led to choose sterilization. Parker Mauldin and Sheldon Segal, two researchers at the New York-based Population Council, report that in one sample of Bangladeshi women, 75 per cent who "chose" sterilization had never tried a modern, reversible method.

United States women share this predicament, too. According to William Mosher, a statistician at the National Center for Health Statistics in Maryland, the disappearance of the IUD from the American market in the mid-1980s led to a sharp increase in female sterilization among black, formerly married, less educated, low income, and Hispanic women – the very women who had previously depended on the IUD.

If newer techniques of birth control such as Norpiant (just approved by the FDA), safe IUDs, injectable contraceptives, and a male birth control pill were made available, fewer women might choose sterilization. Of those who did, fewer would regret it. Women in Denmark, France, and Sweden – countries with high rates of contraceptive use and a wider range of options – hardly rely on sterilization at all.

The development and marketing of new contraceptives would broaden the choices for men and women and spread the responsibility of fertility control more evenly. It also would eliminate or forestall the use of sterilization as the method of last resort in countries where other choices are ineffective or virtually nonexistent. □

–Ann Misch, ***World Watch,*** *Vol. 4, No. 2, March/April 1991, pp. 36-37.*

Oil and overpopulation: a volatile mixture

While the world focuses on oil as the key issue in the Middle East (not only because of the threat to the United States and the world's oil supplies, but also because oil was a triggering factor in Iraq's invasion of Kuwait and in the allied response), the role of overpopulation in the conflict has been ignored. Already, the significant effects of overpopulation in the Middle East include economic problems, unemployment, rapid urbanization, declining public health, loss of agricultural land, depletion of resources, environmental degradation, and the migration of large numbers of people across national borders.

Critically, potable water is becoming scarce. Oil, a finite resource, will be consumed at accelerated levels as the area's population continues to grow, causing even more economic chaos. Some countries in the area have virtually no economic viability without oil.

Demographic pressures, including the fact that the Middle East has among the highest fertility rates in the world, and that almost half the population in the area is under 15 years of age, mean the rapid rate of growth can only increase in the future. Population in the Middle East is growing by about 2.8 per cent, whereas the world's grows at about 1.8 per cent. Note that the annual growth rate of 2.8 per cent means that the region's population doubles every 25 years. Iraq's annual growth rate is 3.8 per cent – its population doubles every 18 years.

Despite the efforts of the governments in the area, overpopulation undermines efforts at economic development, and the gap between the rich and poor is increasing as per capita living standards fall. Meanwhile, the mass media spread images of a better life elsewhere, particularly in the industrialized world. Tensions generated by urban crowding and large-scale unemployment among youth, which can lead to violence as outlets for frustration, are continually fueled by rapid population growth. Currently, the "haves" in the area are coming under increasing pressures from the "have nots." The recent invasion of Kuwait by Iraq, which was impoverished by the Iran-Iraq war and by its exploding population, is but one portent of further instability to come.

Migration has in the past been a safety valve for some of the overpopulated countries in the area. Today, such migration brings political problems and is the source of increased tension, especially as many of the former migrants from overcrowded Egypt now have to return home to unemployment because of the war and economic problems where they were working.

Already highly urban, 60 per cent of the population in the Middle East lives in cities. This growing urbanization resulting from excessive population growth is causing crowding beyond the capacity of the large cities. For example, if current trends continue, by 2025 Cairo will total 20 to 30 million, while Baghdad, Istanbul, and Tehran will reach 15 to 20 million each. In addition to the traffic jams, air pollution, trash, polluted drinking water, declining public health, and other problems typical of overurbanization, political volatility emerges from this mix. In sum, the Middle East is a classic example of the carrying capacity of a region being overwhelmed by too many people competing for too little livable space and too few resources.

*– Excerpted from "Oil and Population: A Volatile Mixture," **Population-Environment Balance Report**, No. 69, April 1991, pp. 1-2.*

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